Tomorrow comes today

Trends shaping the future of the Creative Industries

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Philippe Schneider

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Foreword

"Crises take longer to arrive than you can possibly imagine, but when they do come, they happen faster than you can possibly imagine."

Rudiger Dornbusch

"Everybody wants perspective from a hill. But everybody's wants can't make it past the window sill."

David Berman

The past three years have witnessed convulsions without modern parallel. The onslaught of a global pandemic magnified by higher inflation and a surge in energy and food prices, along with the supply and trade disruptions triggered by geopolitical conflict, have upended long-held assumptions and beliefs about how things are supposed to work in the global economy. Former US Treasury secretary Larry Summers described the situation in bracingly direct terms: "This is the most complex, disparate and cross-cutting set of challenges that I can remember in the 40 years that I have been paying attention to such things" (Summers, 2022). While these events have had their own singular effect, they have also exposed fault lines that had been building over time under the surface. The global economy entered the Covid-19 pandemic at a time of transition. The digital revolution, shifting trade patterns, demographics, climate change, urbanisation, rising inequality and political uncertainty were already asserting themselves and making for a more volatile world – one full of opportunity but also fraught with peril.

The pandemic, in particular, has accelerated many pre-existing trends. Or in the words of Microsoft CEO Satya Nadella: "What we were going to think about during 2030 is probably going to be true in 2025" (ICAEW, 2019). This was a reference to the process of digital transformation and increasing convergence of online and offline activity that was hastened by lockdowns and social distancing restrictions. But the pandemic's role as an accelerant was felt on many other levels beyond technology. The pandemic added momentum to the retreat from global economic integration that had been fraying in the wake of the global financial crisis (Irwin, 2020). Not all impacts operated at the macro level. Stuck at home during the pandemic, many households embraced animal companionship, supporting a boom in pet spending. But the reality is that the industry had been benefitting from structural growth trends related to the humanisation and premiumisation of pet ownership and changes in household formation among younger demographic groups (Morgan Stanley, 2022).

More fundamentally, the pandemic compounded underlying inequalities in the labour market since the ability to work remotely was strongly associated with higher levels of education. In developing countries, the same forces were, if anything, stoked by informality as workers struggled to access formal support such as unemployment insurance, chipping away at their employability and earning power in the future. Impacts were sometimes contradictory: for every loser, there was often a winner. They were also multifaceted: the pandemic increased the prevalence of mental health issues but it also raised awareness about those issues and made people more willing to open up about problems that that had possibly been present for years and seek out support from family and friends in addition to more formal services (UN, 2021). In some cases, this openness led individuals to re-evaluate how much meaning and contentment existed in their lives with consequences for work and other basic decisions. The list goes on and on.

The speed and depth of the pandemic took many by surprise. But it should not obscure the fact that health experts had been warning for years about the risk of a pandemic and our collective lack of preparedness. In 2019, the Global Preparedness Monitoring Board (GPMB) issued the fateful appeal: "For too long, we have allowed a cycle of panic and neglect when it comes to

pandemics: we ramp up efforts when there is a serious threat, then quickly forget about them when the threat subsides. It is well past time to act" (GPMB, 2019). It is not surprising then that many governments were caught flatfooted when the pandemic broke with tragic consequences for lives and livelihoods.

Improvisation and declarations of good intentions are not a substitute for a systematic process or serious planning (Hefferman, 2020). The future is not perfectly knowable and never will be. But confronted with difficult trade-offs about where to allocate and invest limited resources, organisations must nonetheless try to extract signals from the noise so that they can position themselves to make the most change. This is particularly true for activities that we value and wish to preserve and have the capacity to contribute to the post-pandemic recovery. The creative industries were among the worst hit by the crisis and are still often an afterthought when it comes to policy action, but this does not alter the fact that they are critical cultural and economic assets. They are a powerful engine of jobs, growth and innovation; they produce fulfilment and are linked to many other areas of policy impact such as health and climate change; they give expression to the social commitments that make an individual life rich and the diversity of individuals that enrich social life; and they provide spaces that are open to the play of thought, emotions and agency, allowing individuals to step outside their daily routine. In the UK alone, prior to the pandemic, the creative industries contributed £116bn in gross value added (GVA), growing twice between 2011 and 2019 than the rate of the UK economy as a whole. According to UNCTAD, global exports of creative goods reached $524mn in 2020, while world exports of creative services hit $1.1tn. Definitional and measurement differences notwithstanding, this figure is the tip of the iceberg since it does not take into account the nontradable parts of the creative economy and its potential multiplier effects for other sectors.

In other words, the stakes are high. But building future readiness is not easy. It requires a significant shift in the identity of the firm and the incentives that are lodged deep within its operating and budgeting practices. The set of variables shaping business decisions introduced by structural change can appear disorienting and overwhelming. Against this backdrop, it is tempting to cleave to internal, known and controllable variables at the expense of changes that are unfolding externally. This can lure decision-makers into a false sense of security, making it harder to imagine alternative futures that could be the difference between being on the right and wrong side of structural change. By contrast, there is evidence that businesses that shift resources to act on the opportunities (or mitigate the risks) created by structural change and take strategic foresight seriously outperform peers over the long-term (McKinsey, 2018; Rohrbeck and Kum, 2018). For investors, investing in trends can generate significant excess or risk-adjusted returns at a time when traditional investment frameworks and popular approaches to constructing portfolios such as by sectors or countries have been found wanting, as illustrated by the narrowing dispersion in returns (Citi, 2021).

Identifying early what might confer advantage in the future is particularly important where investments involve long lead times. There is often a considerable lag between investing in new technology, skills or markets and the resulting increase in capabilities. Except for the most routine activities, it takes time to adapt, embed and develop capabilities to a productive level. With long lead times, the costs of waiting to respond to a disruption until after it has happened can be substantial. This is especially true in a world of tail risks – a world that does not revert to an orderly and calming mean but one where there will always be an event even more extreme than the most extreme event to date (Flyvbjerg, 2020).

There is every reason to think that these pressures will only increase in the future. With the advent of the digital economy, large swathes of activity are characterised by increasing returns – the tendency for a product or phenomenon that gets ahead to stay ahead. This arises

from the fact that intangible goods, based on knowledge, ideas and creativity can be replicated infinitely at virtually nil cost. In an economy where scalability, often reinforced by network effects, is important, some businesses will quickly dominate the market. These disruptive and sometimes monopolistic tendencies mean that businesses that fail to anticipate trends or delay taking action may find themselves at a permanent disadvantage barring a misstep by incumbents. Acting early is no guarantee of success but it is often preferable (Cusumano et al., 2019).

For these reasons, foresight can be an extremely valuable tool. If the art of strategy is having a clear diagnosis of the situation, identifying its crux – the part of the challenge that is important and actually solvable – and then formulating a reasonable action response, then understanding the key features of the environment in which creative organisations will be operating – its opportunities, constraints and dynamics – is a vital first step (Rumelt, 2022).

Decisionmakers are swamped by information that is stripped of context and swayed by narrative formulations that are all too often imposed on messier realities. It can be difficult to separate what really matters – and what is useful – from the noise and hype. The report – a combination of charts and supporting commentary – seeks to fill this gap by distilling the key features of the environment facing the creative industries in the next 5 to 10 years in a way that is thoughtful and balanced. It is organised around seven megatrends: technological change, globalisation, demographics, environmental change, urbanisation, increasing inequality and political uncertainty. Similar organising frameworks are used in other reputable analyses. Together, megatrends represent the broadest currents of change, impacting economic growth, shifts in industry structure and demand patterns. For example, consumer confidence tends to weaken during periods of slower economic growth and/or higher inflation with spending cutbacks falling disproportionately on discretionary items rather than necessities, impacting creative goods and services (Kamakura and Du, 2012; BofA, 2022). Changing macroeconomic conditions can also have a significant effect on the types of businesses that are favoured by investors. As interest rates rise and make borrowing more expensive, so there is often less tolerance for speculative or growth projects like CreaTech ventures whose returns lie further into the future (Goldman Sachs, 2022; Deutsche Bank, 2022).

Each megatrend is in turn made up of numerous sub-trends framed around a set of semi-standardised questions. Sub-trends can be understood as strategic responses and changes in expectations of businesses and individuals to megatrends. They form the backbone of the deck and have been selected with the PEC, the International Council and other stakeholders for their relevance to the creative industries. In some cases, they overlap with wider interests and priorities – consider how creative industries have served as canaries in the digital coal mine for the rest of the economy (Page, 2021). But the creative industries are also exposed to other sub-trends that have attracted less attention among decision-makers. A broader perspective captures not only these important sources of change but also the interactions between them whose full significance is often missed when viewed in isolation.

To paint a more rounded picture, the deck pulls together many different sources: market intelligence, academic research, open datasets, consultancy and policy documents, media articles and even ethnographic work – sources that are seldom assembled in one place but are highly complementary to one another. Compared to foresight methods such as scenario development, the analysis relies heavily on quantitative evidence and historical data (Popper, 2008). This choice is motivated by the observation that there is a high degree of inertia, and thus predictability in human and natural systems: once particular paths have been forged, it requires significant effort to divert them on to another course. This implies that we can learn something about the

future by examining its past as well as the pace and trajectory of trends, as the as the impact of pandemic illustrated. Another advantage of this empirical grounding is that it captures those trends that have a tangible impact on behaviour as opposed to ones that are secondary or transitory.

At the same time, trends should not be approached as a triumphalist, unidirectional process. The study of complex systems demonstrates how seemingly stable systems can undergo sudden change through phase transitions – much in the same way a small increase in temperature can transform a slab of ice into flowing water (Bahcall, 2019). Or to paraphrase Ernest Hemingway, change happens gradually, then suddenly. Theories of boom and bust also underscore how dislocations that follow a long period of stability are greater than those that occur in uncertain times by encouraging greater risk-taking (Minsky, 1986). Acknowledging that trends can slow down, change direction or even experience sharp discontinuities, the report examines the major uncertainties and tensions surrounding each trend. The academic literature is particularly useful in surfacing these contingencies as well as providing a toolbox of concepts and mechanisms for understanding emerging trends and how they become established. It is complemented by web, magazine and newspaper articles that are less technical but have the latitude to scan developments at the hazier edges of the known environment and possibly beyond it – akin to an impressionistic painting in which light and shade make up for the lack of detail.

By definition, global megatrends are relevant worldwide, acting across markets and societies. That is, countries face not only common issues, but issues are increasingly interwoven between them. A global approach also recognises that some countries, regulators and businesses – notably China, EU and US – play an outsized role in the global creative and digital economy. Examples from the UK are also used in a number of places given the report's likely audience and the evolution of the project. At the same time, the analysis into greater detail whenever locally specific findings pull in a different direction. This can be seen in the case of lower income economies where informality, institutional and regulatory constraints, the reliance on mobile technologies and the unequal organisation of global creative production are important contextual features. In some cases, these are basic differences of kind, not degree: whereas ageing demographics in developed countries put a strain on labour supply and public spending, lower-income countries with a rising proportion of young and working-age people have the opportunity to benefit from a demographic dividend. In each case, the task is to work through which additional information adds nuance and meaning and which obscures or overloads the analysis and can be safely ignored. Where appropriate, the analysis connects these different scales by drawing on classification systems that aggregate data for similar countries – for example, by income, demographics, region, resource dependence or institutional heritage. These heuristics can be used to extract the most salient differences from the multitude of individual cases and link them into broader patterns.

Although viewed collectively as a sector, it is recognised that the creative industries are not a homogeneous universe with each subsector possessing its own value chain, regulatory framework and even working culture. This can be seen in the implications of streaming services that vary by creative content (music vs. video vs. news vs. games) and the position of market actors along the value chain (content owners vs. distributors vs. devices). But once again, more is not always better. As unique as any particular case may appear, it also belongs to a wider class of phenomena. There is a growing consensus that adopting an 'outside' view can improve foresight: individuals with good forecasting records nearly always start by examining related cases along with distributional information about outcomes and only then calibrate it to the warp and weft of a particular case (Kahneman, 2012; Tetlock and Gardner, 2015). In this respect, there is much that the creative industries and its constituent

parts can learn from the wider economy – from related sectors that produce intangible goods and services, are data-intensive or are involved in the so-called experience economy as well as microbusinesses or ventures that contribute to social impact that make up a disproportionate share of the creative economy.

The hope is that this report will inspire stakeholders to generate new insights. Practical considerations aside, it cannot provide each subsector and country with a detailed blueprint for responding to the trends explored in subsequent chapters. It does, however, aim to provide a shared basis for thinking about trends so that they can begin to unpack and translate what they mean at the sub-sector level. This applies as much to the smallest creative businesses that are often so deep in the trenches that they miss the bigger picture as it does to policymakers and strategists who are intellectually and professionally obliged to take a wider approach.

Whatever the precise sequence or format, stakeholders will need to ask themselves which trends and sub-trends are most relevant to their industry, as measured by impact, probability of occurrence, speed of onset and second-order effects. In addition, businesses will need to reflect on the implications of trends for their own strategy, operations, workforce and choice of partnerships and how they can be leveraged to create value. Other potential questions include: What assumptions about the trends are baked into organisations' operating model and external positioning? How do trends change perspectives on current investments and capabilities, including revenue growth and cost reduction initiatives? In what ways will they affect consumer preferences and expectations? How are competitors and peers in other sectors responding to similar trends? What can be learned from their good practice? What incremental actions can organisations take to leverage trends, factoring in barriers to adoption? If bigger bets involve long lead times, what do they need to do differently beginning today? What parts of the organisation and sub-sector are most vulnerable as the trend evolves? Do decision-makers have a broad understanding of emerging risks and potential sources of disruption? Are processes in place to ensure that they can respond promptly to what is happening on the margins?

Thinking about the future is not easy at the best of the times (Oxford Martin, 2013). Given the shocks that have jolted the world in recent years, many organisations have understandably responded by focussing on damage limitation – on toiling through the present to give themselves a fighting chance of survival tomorrow. But as the fog-of-war phase of the pandemic recedes, so it is no longer sufficient for organisations to be locked in a defensive crouch. They must ask hard questions raised by structural change – to reflect on their future preparedness and on how change can be harnessed to foster a more resilient and sustainable creative economy. If anything, the present moment has made changes that were previously thought impossible easier to contemplate. It is a substantial opportunity – and one that businesses cannot eschew attempting to seize, if only for the simple fact that competitors are unlikely to remain idle. Our hope is that this report helps stimulate a conversation on these questions along with a sense of urgency around the changes that must surely come.

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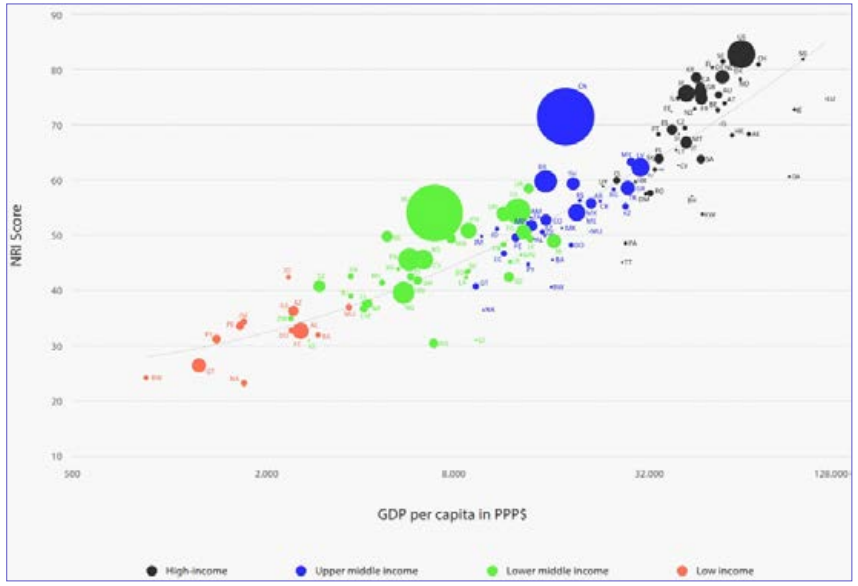
Technological change

Trends shaping the future of the Creative Industries

1 Economic potential of digitisation and barriers to diffusion

INTRODUCTION: The digital economy is one of the most important drivers of economic growth and innovation in the creative industries

Network Readiness Index (NRI) scores and GDP per capita in PPP$ NRI 2022 (bubble size: population)



Notes: The NRI analyses 131 countries' performance across four dimensions of digital readiness – technology, people, governance, and impact – using 58 different indicators. Countries are grouped according to the World Bank country classifications by income level (July 2022). GDP per capita and population data (represented by the size of the bubbles) are for 2021 or the latest year available. A group of 44 middle and low income economies outperform their expected levels of development in one or more of the four pillar categories of digital readiness. China, India, and Rwanda further distinguish themselves as the only countries to do so in all four categories. Source: Oxford Said Business School (2022).

Digital technologies have transformed economic activity. Advanced connectivity, artificial intelligence, virtual reality, blockchain and digital trust architectures, among other developments, have drastically reduced transaction costs – such as search costs, replication costs, communications costs, tracking costs and verification costs. New forms of organisation and collaboration as well as consumption experiences of higher quality and greater variety have taken advantage of these lower transaction costs.

But many countries are in the midst of an incomplete transition to a digital economy. This is reflected in the productivity slowdown across OECD countries. Since 2010, the annual growth in labour productivity has decelerated to 0.9%, which is approximately half the rate recorded during the period from 1995 to 2007. This slowdown is attributable to slowing rates of technological diffusion to the rest of the economy rather than slowing rates of innovation per se (OECD, 2015). On some estimates, the pace of technological convergence – whereby laggard firms catch-up with leaders by adopting new technologies – has fallen by approximately one third since the late 1990s.

Challenges are particularly acute for developing countries where the past and history exert a strong influence on present day outcomes. Comin et al. (2010) find that levels of technology sophistication across countries in 1500 AD are positively and significantly associated with current income per capita and the state of current technologies.

A number of barriers related to the process of technology and knowledge diffusion account for this faltering transition. They range from organisational factors such as low managerial quality, lack of ICT skills and poor matching of workers to jobs to institutional factors such as weak competition that reduce investment incentives while slowing the reallocation of scarce resources from less productive to more productive uses. Some take a pessimistic view of the technological future as compared to previous waves (Gordon, 2017). On the other hand, history is instructive. Many ultimately transformative technologies can involve long gestation periods, often three or four decades with setbacks and detours along their journeys to widespread adoption (Brynjolfsson et al., 2020).

Advanced connectivity, particularly mobile technology, has driven this fall in transaction costs

WHAT IS THIS TREND?

In addition to existing technologies, 5G/6G, wireless low power networks and low-orbit satellites are helping digital networks to increase geographic coverage, reduce latency, cut energy consumption and boost spectrum efficiency. Data consumption by smartphone surpassed fixed broadband for the first time in 2019 and is set to triple between 2019 and 2024 (PWC, 2020). Closely linked with the mobility afforded by smartphones is their increasing computing power. Today's smartphones are more powerful than PCs and indeed the computer onboard NASA's Perseverance Rover that explored Mars in 2021. They have developed to the point where they now exist as a base layer control panel for an entire ecosystem of devices that are emerging as platforms in themselves (Barclays, 2022).

WHY DOES THIS TREND MATTER?

Advanced connectivity has the potential to narrow the digital divide and deepen existing connections. Nearly 200mn individuals accessed the internet for the first time in 2021 due to these technologies. Mobile technology has supported a flourishing app economy whereby an application is available for just about every imaginable use (Mandel and Long, 2020).

This has been transformative for developing countries where goods and services are not simply mobile first but are mobile only. For example, Kenya's M-Pesa has transformed money transfers for underbanked populations, providing access to more efficient means of consumption and transacting. Suri and Jack (2016) estimate between 2008 and 2014 M-Pesa was directly responsible for lifting 194,000 households (~2% of Kenyan households) out of poverty with the largest gains accruing to female-headed households Suri and Jack (2016). M-Pesa is now in seven countries and evolving into a digital lifestyle companion with the introduction of its M-Pesa Super App.

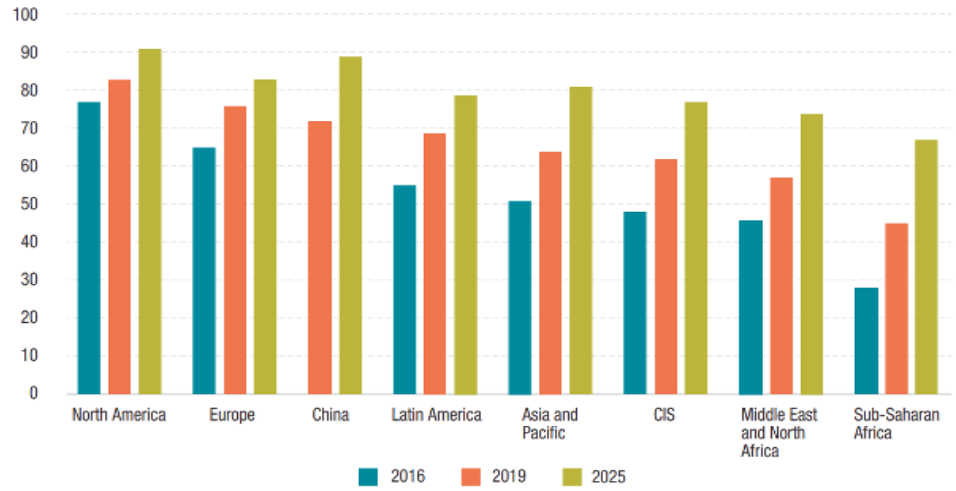
Mobile is an essential tool for leisure among low-income communities: ethnographic work by Agrawal (2018) and Arora (2019) reveals large motivating force behind adoption of mobile-enabled internet is to have fun rather than alleviate poverty contrary to expectations of the development community. In these settings, leisure is inseparable from social media and the desire and opportunity to connect with strangers outside the traditional bonds of family and neighbourhood.

Significant rise in mobile video consumption: nearly four-fifths (79%) of the world's mobile data traffic will be video by 2022. Watching professionally produced creative content on a small screen is not yet the channel of choice for most users, though it is growing rapidly among younger groups (adoption x2 average among 25-34 year olds). Mobile devices have also become conduits for 'ambient' entertainment and play – a way to kill time while waiting in line, pausing between tasks or stuck on transport with implications for the optimal design of content, genres and services (Bentley and Lottridge, 2019; Hjorth and Richardson, 2020). A corollary of is that users are engaging mobile phones while consuming TV and other video content. The so-called 'second screen' phenomenon has resulted in innovation around programme-related companion content – for instance, apps allowing viewers to buy products. In the future, it is conceivable users will be able to get details on the clothes that an actor is wearing, related music and books or restaurant bookings on cooking shows, all supported by one-click buying, simply by hovering over the character or prop with the mouse or cursor. This could open up new opportunities for broadcasters to maintain engagement and diversify revenue sources amid more intense competition in ways that complement the viewing experience.

⚠ WHAT ARE SOME OF THE RISKS, UNCERTAINTIES AND TOPICS OF DEBATE RELATED TO THIS TREND?

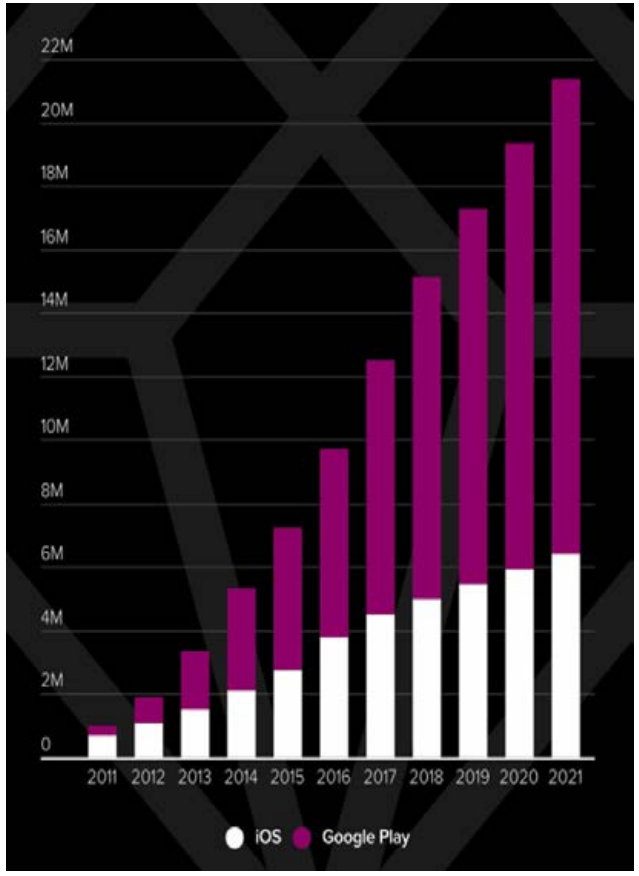
Ubiquitous and affordable internet access remains a work in progress. In 2022, nearly 3bn people remained offline with the vast majority (94%) concentrated in developing countries. Close to half (43%) of the world's population were not using mobile internet, despite living in areas with mobile broadband coverage reflecting skills and affordability-related barriers. There is also increasing attention on the downsides of mobile use, including harassment, theft, fraud, online security and the potential for compulsive behaviour and addiction. There are also broader questions about what mobile means for the modes of communication, content creation, the meaning of value and quality expectations. As Marshall McLuhan observed in his seminal work *Understanding Media: The Extension of Man*, the medium is often more important than the content. On this logic, social media is a reconfiguration of print, print a reconfiguration of speech, radio a reconfiguration of print, and television a reconfiguration of radio, with each form carrying a different meaning even with same underlying content. In turn, each medium carries a particular set of assumptions about the nature of knowledge that can be unsettling. In Ancient Greece, Socrates warned the act of writing would 'produce forgetfulness in the minds of those who learn to use it, because they will not practise their memory' while the centrifugal forces unleashed by the printing press challenged churches as centres of knowledge and communication while simultaneously giving rise to new forms of literalism and legitimation (Carr, 2010; Simpson, 2019).

Smartphone adoption, by region, selected years (%)



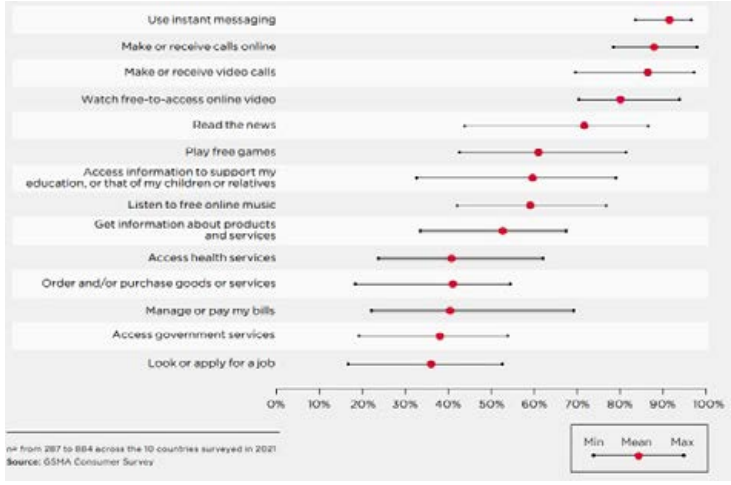
Notes: Country groups are those of the source. Data for 2025 are forecasts. Source: UNCTAD (2021).

Cumulative Number of Apps released by Store



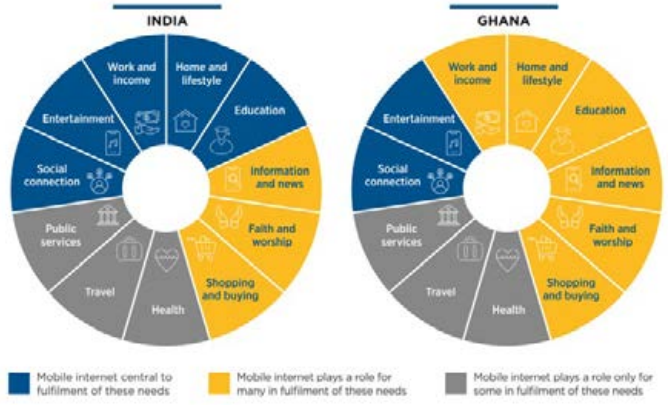
Source: data.ai (2022).

Activities that mobile internet users report having done at least once on a mobile phone, 2021 (percentage of mobile internet users)



Source: GMSA (2022).

The role of mobile internet in supporting 11 "life needs" of users in India and Ghana



Source: GMSA (2021).

2 Internet of Things and edge computing

Trends shaping the future of the Creative Industries

The Internet of Things (IoT) – the convergence of digital and physical worlds – is the next stage in connectivity

WHAT IS THIS TREND?

IoT combines the Internet, near-field communications, hardware and embedded sensors with real-time localisation. The range of everyday objects being computerised and connected to networks is remarkable, from pills, nappies and fridges to cars, jet engines and factory equipment. Driven by reductions in sensors' size, price, and energy consumption as well as their increased performance, the proliferation of intelligent 'things' allows behaviour to be tracked and analysed at a granular level.

Affective computing, enabled by the IoT, is another growing area of interest. Next-generation sensors can now pick up cues – facial expressions, hand gestures, eye gaze, vocal tone, head movement, speech frequency and duration – that are rich in emotional information. Some speculate that our personal devices already know more about our emotional state than our family (Gartner, 2018). By combining IoT with AI, it is possible to read these signals and employ them to analyse a user's mood – for example, generating personalised music recommendations so that drivers drive more safely (Cano et al., 2016). Paralleling these developments is the Tactile Internet (TI) – technologies that provide real-time transmission of haptic information to enrich feedback and experiences that could revolutionise live performances, participation in the arts and VR (Krishna et al., 2019; Turchet et al., 2020). Further out researchers are exploring how nanosensors, right down to E-coli bacteria, can join the IoT network and collect data in the last great terra incognita – the inside of the human body (Kim and Poslad, 2019; Fasano and Flaherty, 2021).

Wearable ideas tested

Source: Ericsson (2016).

WHY DOES THIS TREND MATTER?

By 2030, it is estimated there will be 500bn connected devices with the potential to unlock $5.5-$12.6tn in value globally (Cisco, 2016; MGI, 2021). Home, retail and office environments where the bulk of creative production and consumption takes place will account for 20-25% of this estimated value. IoT also introduces new opportunities for design to shape the way people interact with environments and services with implications for museums, architecture, urban and experience design. Companies that master the IoT can harness data from the real world that avoids many of pitfalls and biases inherent in using only online and social media data (Olteanu et al., 2019).

New customer-focussed business models are likely to emerge with the adoption of IoT. The ability to observe directly the value consumers derive from their purchases has opened opportunities for businesses to sell 'ends' (actual outcomes) rather than 'means' (the traditional emphasis on products and services) that might or might not deliver value. Bertini and Koenigsberg (2020) offer numerous examples of how companies in healthcare, transportation, education and other sectors are leveraging and experimenting with this strategy. A colourful, if unusual, example comes from the world of stand-up comedy. In an effort to combat declining audience attendances, Teatreneu, a popular comedy club in Barcelona, charged each customer 30 euro cents for every laugh during a performance up to a limit of €24. Facial recognition technology was fixed to the back of seats to capture reactions. No laughs, no pay. Overall ticket prices increased by €6 and attendance increased 35%.

WHAT ARE SOME OF THE RISKS, UNCERTAINTIES AND TOPICS OF DEBATE RELATED TO THIS TREND?

A world of connected and communicating devices will depend on the maturation of edge computing. In edge computing, data is processed and analysed at the point of origin – on devices themselves – rather than raw data being sent directly to a centralised cloud for use (Cao et al., 2020). An average autonomous driving car is expected to generate 4000-6000 gigabytes of data per hour – an amount that greatly exceeds what could be transmitted back to the public cloud via the fastest 5G networks (~2,250 gigabytes of data per hour) (Goldman Sachs, 2019). Currently 80% of data processing and analysis takes place in traditional data centres or cloud and 20% in IoT devices or local edge servers. Various activities related to the creative industries are particularly suitable for edge computing: media delivery optimisation, content caching, real-time personal promotions, cloud gaming, physics simulation, augmented and assisted reality.

Overcoming barriers around Interoperability, installation, cybersecurity, privacy and change management is crucial to maximising the impact of IoT. MGI (2021) estimates that up to 74% of the value potential of IoT depends on achieving interoperability, notwithstanding the fact that current technology stacks are fragmented and siloed with multiple walled-garden, proprietary systems.

3 AI as a general purpose technology and the competitive value of data

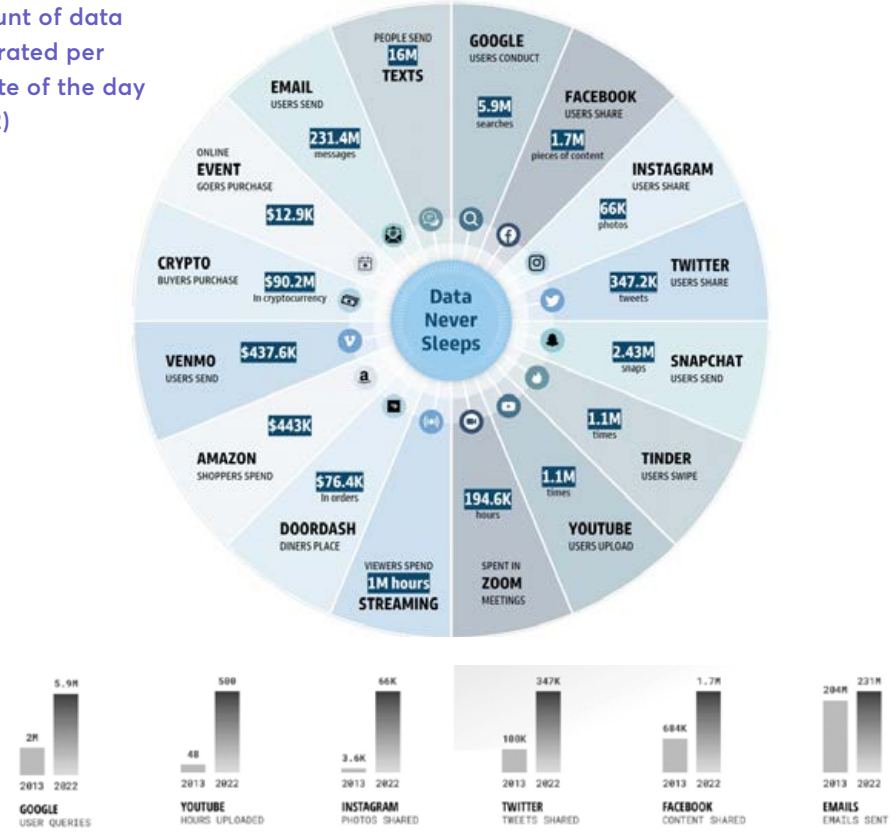
Trends shaping the future of the Creative Industries

Artificial Intelligence and data are at the heart of this transformation

WHAT IS THIS TREND?

AI and improvements in pattern recognition, natural language processing and visual perception are being used to solve classification, prediction and control problems to create value. The effectiveness of AI is heavily linked to the explosion in data: more data via search, communication, location, video and transactions crosses the internet every second than was stored 20 years ago and can be used to train and improve the performance of algorithms. Our vocabulary of data has moved from the byte to the megabyte to the gigabyte to the zettabyte to the yottabyte with the geopbyte looming just over the horizon. Unstructured data has the distinct advantage of being timelier, more granular and cost-effective than data collected via traditional survey methods ('nowcasting') (Dong et al., 2017). On some estimates, open data – data that anyone can access, use and share – has the potential to unlock $3.2-5.4tn in economic value each year (BofA, 2023).

Amount of data generated per minute of the day (2022)



Source: Domo (2023) and Goldman Sachs (2023).

WHY DOES THIS TREND MATTER?

AI is understood as a meta-solution to the 'burden of knowledge'. More and more learning is required just to get to the point where researchers are capable of pushing the technological frontier forward, as reflected in lengthening education phases, narrowing expertise and greater reliance on teamwork. For example, the number of researchers needed today to achieve Moore's Law – the celebrated doubling every two years of the density of computer chips – is more than 18 times larger than the number needed in the early 1970s (Bloom et al., 2020). AI facilitates search over these complex knowledge spaces, enabling both improved access to relevant knowledge and ability to predict the value of new combinations (Agrawal et al., 2019).

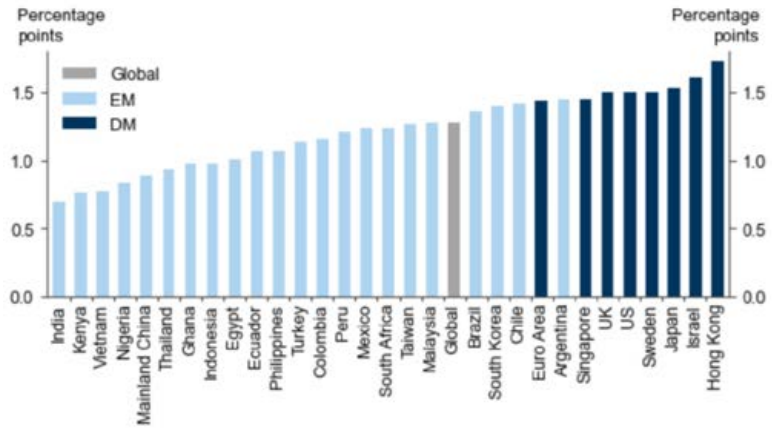
AI and data-driven decision-making (DDD) should have a positive effect on productivity. At a firm-level, evidence suggests that greater use of data-driven decision making can improve productivity by 3%-10% depending on a number of complementary factors (OECD, 2015; Brynjolfsson and McElheran, 2016). More broadly, AI could add $11-17.7tn to the global economy by 2030. The adoption of generative AI could boost this figure by a further 15%-40% if applied to current use cases and 35%-70% if embedded in all knowledge work (McKinsey, 2023).

Looking at the breakdown of these estimates, the bulk of the additional economic output from AI will come from the development of new goods and services, as compared with efficiency gains through automation and labour-substitution. Meanwhile, sizing the boost to productivity by country, the positive effects of AI over the next decade appear larger for high-income countries and interestingly Latin American countries, such as Argentina, Chile and Brazil. This contrasts with other emerging market economies, where the impact will be smaller and more diffuse. Whether this translates into gains that are broadly shared remains a question mark (Goldman Sachs, 2023).

Breakdown of AI's economic impact: cumulative GDP boost in 2030 vs. today (%)

Note: The economic impact of AI will be felt along several dimensions. The n umbers are stimulated figures to provide a directional perspective rather than a point forecast. Source: BofA (2023) based on ITU (2018).

Effect of AI adoption on annual productivity growth, 10-year adoption horizon



Note: this presents a baseline scenario, though estimates may be smaller or larger depending on AI's capabilities and adoption timeline. DM=developed markets; EM=emerging markets. Source: Goldman Sachs (2023)

WHY DOES THIS TREND MATTER? (CONTINUED)

The creative industries are finding a range of use cases for DDD:

Brands buy audience segments from data brokers for targeted advertising. Targeted advertising that draws on behavioural and demographic insights and tailors advertisements to match consumers' interests has soared in the past decade and accounted for 78.4% of US spending on display and video advertising in 2020, up from 31.2% in 2013.

Post-release and word-of-mouth marketing is the most common application of analytics in content sectors. This is significant given that marketing, on average, accounts for >50% of a project's total budget at major film studios (Gong et al., 2011).

The role of data in production and demand prediction in content industries, by contrast, is still in its infancy. In the film industry, services such as Epagogix, Scriptbook, Cinelytics and VaultML offer early revenue projections, though performance is highly sensitive to outliers. Natural language processing (NLP) has been combined with expert domain knowledge to identify relevant comparators for new scripts that is key to predicting revenue potential. It has also been used to identify emotional arcs in stories that stimulate greater audience engagement – in the process underlining the importance of features such as 'early exposition' and 'strong nemesis' for a film's future success. In gaming, the behaviour of players is analysed to understand how long they will play, what levels they might achieve, how much money they may send and how to influence player behaviour to keep them engaged.

Analytics are also informing practices such as dynamic pricing – charging customers different prices for same product based on demand. Dynamic pricing is particularly suited to concerts, performing arts, retail fashion, sports and businesses characterised by high fixed costs and limited capacity, though adoption has been limited by perceived unfairness, lack of transparency and propensity for tacit collusion (Haws and Bearden, 2016; Oxera, 2018). Concerns have been expressed about the role of dynamic pricing for concert tickets that has seen younger and poorer music fans priced out with some tickets going for thousands of pounds.

Leveraging analytics for supply chain and project management. In the film and TV industry, activities such as budgeting, territory, set selection, schedule optimisation, workflow planning, human resource management, subsidy cost calculations and currency risk are all highly definable and measurable and can therefore be improved through the use of data analytics (Behrens et al., 2020).

Researchers are using data from music, books, films and video games as windows into consumers souls and wallets to forecast economic conditions. This can be used to help businesses make better capital allocation and product development decisions. Using natural language processing tools and data on music downloads from Spotify, Sabouni (2018) finds that the moods expressed in the Spotify's most popular songs predicts consumer spending just as well as the widely respected Michigan Consumer Sentiment Index. Edmans et al. (2022) also find that music sentiment is significantly correlated with asset prices, including stock market returns.

⚠ WHAT ARE SOME OF THE RISKS, UNCERTAINTIES AND TOPICS OF DEBATE RELATED TO THIS TREND?

High upfront costs in talent and resources. Larger organisations have made much greater strides with these technologies than smaller peers, in part reflecting the larger scope to benefit from AI-driven efficiency gains. . Supporting wider adoption is a priority for the creative industries given that many subsectors are uniquely reliant on microbusinesses. According to findings for UK Digital Culture 2019 survey, 76% of large arts and cultural organisations reported that they use digital technology 'to understand their audience better through data analysis, segmentation and/or profiling', compared to only 28% of small organisations. Likewise, 16% of large organisations use dynamic pricing versus a mere 4% of small organisations. Barriers to entry are compounded by the high demand for data science skills in the wider labour market that may price out both large and small creative organisations. These inflationary market pressures are intensified by the rapid obsolescence of data science skills that exacerbate labour market mismatches and supply bottlenecks (Deming and Noray, 2019).

Poor organisational design. There is often no centre of gravity for analytics efforts or personnel that can translate data insights into actionable business insights (Bachall, 2019). Relevant data is often buried with individual departments resulting in a host of IT issues (fragmented and legacy systems) and cultural issues (insular and territorial business units). There are sometimes tensions between workers who are versed in STEM and quantitative thinking and are overly confident about what data can achieve and colleagues who emphasise the role and analysis of culture, history and language – 'thick data' – in explaining behaviour and communicating data to diverse audiences (Hartley, 2017; Madsbjerg, 2017; Wang, 2017; World Bank, 2022). Given that successful problem-solving depends on deliberation, argumentation and selective imitation, analytics may decrease, rather than increase, flexibility – one reason for the growing demand for social skills (Deming, 2017). Finally, analytics may not be used in ways that support creativity and innovation. Frischmann and Selinger (2017) term this risk as 'timecards on steroids' as management uses analytics to reinforce top-down discipline, crowding opportunities for employees to think and act creatively.

Data quality. Unstructured data is a by-product of other goals, processes and activities, raising questions about its quality and representativeness and consequently bias in DDD. Defining, cleaning and organising bias-free data is an emerging business opportunity – consider Amazon's SageMaker that uses machine learning to determine which data needs to be labelled by humans and delegates this work to human labellers via its Mechanical Turk system or third-party vendors.

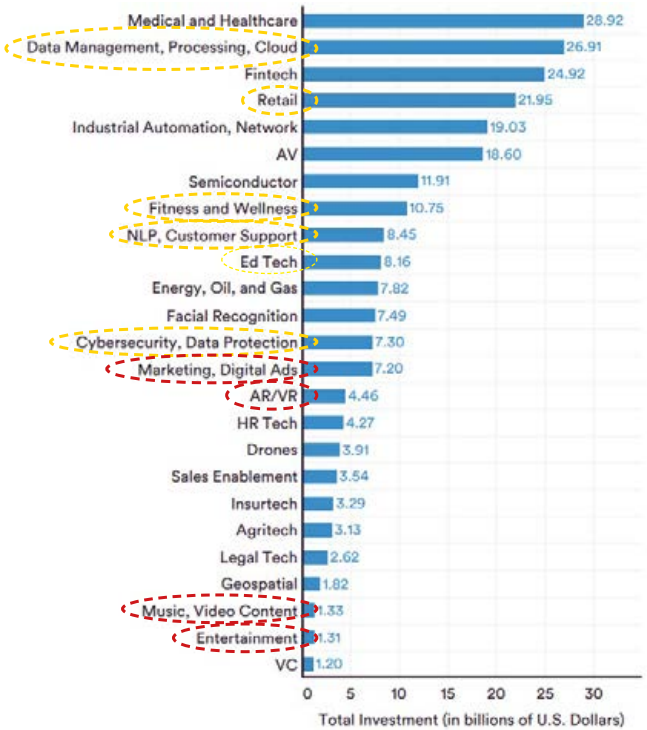
⚠ WHAT ARE SOME OF THE RISKS, UNCERTAINTIES AND TOPICS OF DEBATE RELATED TO THIS TREND? (CONTINUED)

Uneven distribution of data. Data has been likened to the new oil of the digital economy. This is particularly true in the creative industries where the infinite variety of creative outputs creates problems of data sparsity, namely algorithms struggle to learn from only a few examples or transfer knowledge between domains. Thus, decision makers underestimated the success of 2016 action fantasy Warcraft, based on MMORPG World of Warcraft, because there were so few game-to-movie adaptations on which to base a prediction. The Open Data Institute (2020) highlights how over 50% of all data created each day feeds to only 100 companies globally. There are fears of 'data colonialism' as local economies in the Global South lose the ability to develop their own technological innovations based on indigenous datasets. In Europe, 96% of countries currently have data protection laws in place vs. 43% of the UN's Least Developed Countries (Elmi, 2020).

Size matters but by how much?

- Bajari et al. (2018) examine the effects of 'more data' on accuracy of Amazon's retail demand system along two dimensions: the number of products within a product category and the number of time-series observations per product. They find gains in forecast improvement along the time dimension, though with diminishing returns to scale. By contrast, providing more data on similar retail products within a given product category has no effect on forecasting accuracy.
- Chiou and Tucker (2017) exploit a natural experiment and find that length of time that search engines retain users log data does not affect the quality of results.
- Schaefer et al. (2018) find economies of scale to data in the context of internet search. But the type of data is perhaps more important – notably personalised information substantially increases the speed of learning.
- Neumann et al. (2019) find the use of digital profiles in targeted advertising increases identification of users on simple demographic attributes by 0-77% relative to random audience selection. Audience identification improves, on average, by 123% when combined with optimisation software. But given the additional costs of using targeting solutions, they may not always make commercial sense except for higher-priced media placements (e.g. video advertising).
- Posner and Weyl (2018) offer a contrasting perspective and highlight the potential for data to exhibit increasing returns. For example, some services may have reached a level of maturity where they do not benefit from additional data (e.g. film recommendations). However, the same data may be useful for other services and problems that are further behind in the development cycle (e.g. VR, speech recognition). Indeed, in many cases, these adjacent activities will have more complex data requirements and generate greater value.
- Advances in generative AI have the potential to mitigate the impact of scale. They are being used to create 'synthetic data' – new artificial data based on key dimensions within a smaller sample of real data. On some estimates, the use of synthetic data could by 2025 reduce the amount of real data needed for machine learning by 70% – in the process, allowing smaller companies to challenge incumbents who currently sit on large troves of primary data (UBS, 2023).

Global private investment in AI by focus area, 2017-2021 (sum)



Source: AII (2022).

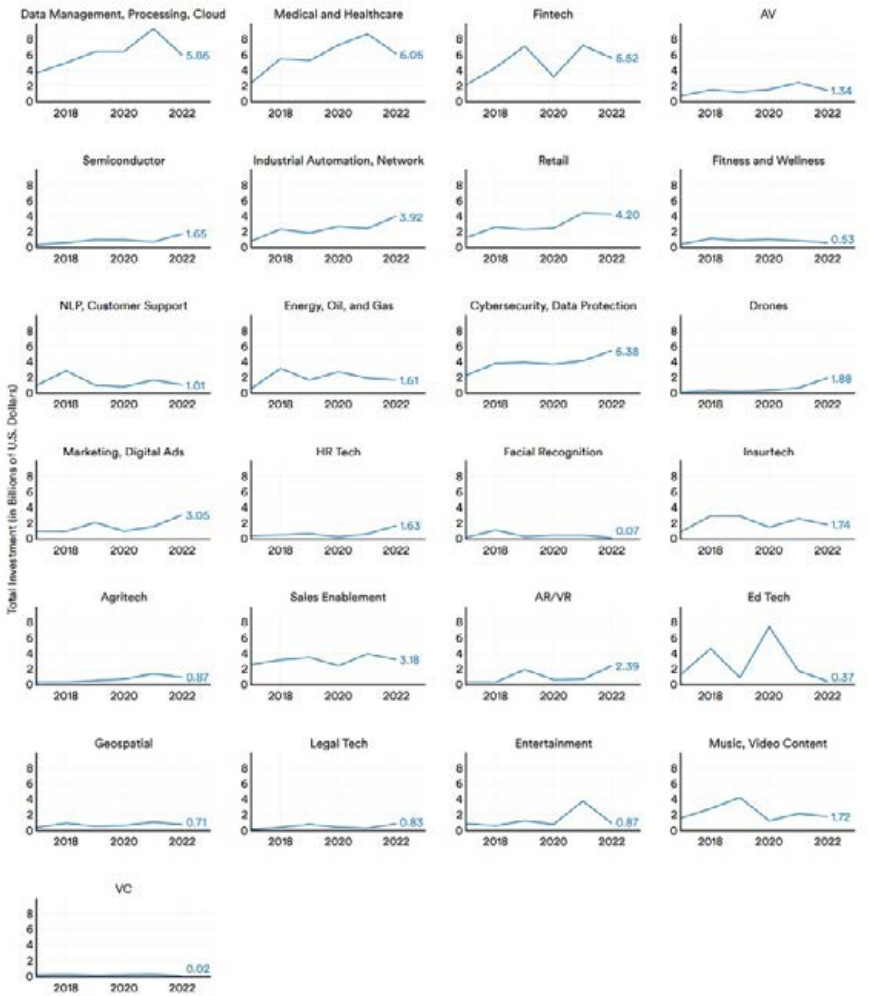
Strongly related to creative industries

Moderately related to creative industries

Authors calculations

Global private investment in AI by focus area, 2017-2022 (trend)

AI investment has increased substantially over the past decade. However, last year was the first year in a decade where private AI investment declined. Global AI private investment was $91.9bn in 2022 that marked a 26.7% decline since 2021, though within this broad category, there have been pockets of resilience such as continued investor appetite for generative AI startups. Source: AII (2023) and PitchBook (2023).



4 Creative intelligence, future of work and new business models

Trends shaping the future of the Creative Industries

A number of technologies are showing particular promise for creative intelligence tasks

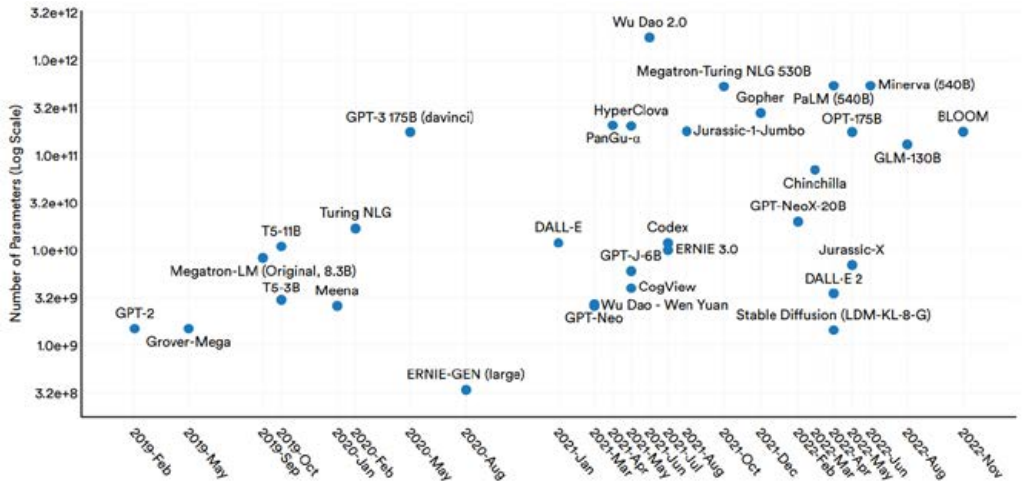
WHAT IS THIS TREND?

Advances in AI and automation enable many tasks previously performed by humans to be produced by machines. Newer 'deep learning' methods are beginning to learn directly from data without human intervention and in more generalised ways. Progress has been made on a number of engineering fronts that is relevant to successful creative activity:

Large language models (LLMs) use deep learning, trained on the text of thousands of books and most of the internet, to generate convincing human-like text and conversations on demand. What has been a surprise to many is the way in which a relatively simple scaling of the learning dataset and computational power of these models has resulted in a significant improvement in performance and versatility with evidence of 'emergent behaviour'. For context, in 2018, the BERT-large model was on the cutting edge of AI technology and had 340mn parameters – the values that a neural network tries to optimise during training. Today, models like Google's PaLM comprise 540bn parameters, making them almost 1600-times larger. Despite coming sharp on the heels of its predecessor, GPT-4 is more 40% more likely to produce factual responses and performs better GPT-3.5 on benchmark exams (Open AI, 2023). Seeded with only a few basic prompts, these models can produce press releases, technical manuals, job applications, poetry, medical diagnoses, games, functioning code, protein sequences, virtual companions and essays on everything from Shakespeare to string theory and even explain them in language that a five-year-old would understand.

ChatGPT, the natural language AI chatbot and variant of GPT-3, gained 1mn users in just 5 days, making it the fastest consumer internet app in history. This compares with Spotify (5 months), Facebook (10 months) and Netflix (3.5 years). Within two months, it had acquired 100mn active users. Capitalising on the surge in success ChatGPT has enjoyed, OpenAI is reportedly offering a tender offer valuing itself at $29bn. It is estimated that 40% of all working hours could be impacted by LLMs since language-based tasks make up 62% of total employee hours, and 65% of that time could be made more productive through augmentation and automation (Accenture, 2023).

Number of Parameters of Select Large Language and Multimodal Models, 2019–22



Source: AII (2023).

WHAT IS THIS TREND? (CONTINUED)

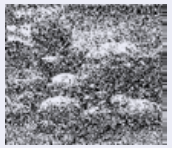
New multimodal models are linking objects in an image to the words that describe them to generate images based on the concepts it has learned. Meta's ImageBind, for example, combines six types of data into a single 'embedding space'. Over time, the hope is that this process – vokenisation – will help AI systems better understand language by providing context for deciphering the meaning of words, phrases and sentences (Tan and Bansal, 2020). The ability to synthesise sensory and linguistic inputs approximates the way in which humans gather and process new information and hints at a more flexible and robust kind of AI that can adapt to unfamiliar environments (Heaven, 2019; Hao, 2021; Sutskever, 2021). Multimodal models may also lend themselves to other creative problems such as describing music in words.

There is a parallel shift towards more general reinforcement learning. Over the past decade, AI systems have mastered narrow tasks in which they have been required to maximise performance in a particular skill, as popularised by DeepMind's AlphaZero superhuman performance in chess and go. New reinforcement learning environments have emerged to reduce the generalisation gap by emphasising high diversity in problem type. For example, Procgen is a suite of 16 unique, procedurally generated video game-like environments that are specifically designed to train and test the ability of AI systems to learn generalisable skills (Cobbe et al., 2020).

Imitation learning techniques train neural networks how to perform tasks by watching humans do them. Imitation learning differs from traditional reinforcement learning that relies on trial and error. Reinforcement learning algorithms are best suited for tasks that have a clear goal, where many random actions can lead to accidental breakthroughs. They reward those accidental breakthroughs to make them more likely to occur again. However, they are less equipped for more exploratory and open-ended tasks. Imitation learning enjoys an advantage here and is suitable tasks such as, controlling robot arms, driving cars and immersive worldbuilding for storytelling. Using a techniques called Video PreTraining (VPT), a bot was trained to play MineCraft by watching 70,000 hours of video of people. By observing this behaviour, it learned extremely complex tasks such as crafting diamond tools and created highly intricate builds in a game that is famous for its pixelated, blocky textures.

Generative adversarial networks (GANs) produce artworks by training a pair of networks in competition with each other – a discriminator is fed with images of the real world and a generator that generates new images from scratch. The discriminator decides whether the image it receives from the generator is real or fake, based on the images it has been fed, forcing it to produce forgeries of better quality with each new iteration (Goodfellow et al, 2014). They have been applied to more complex tasks such as generating videos from images and building realistic 3D environments from short video clips. Creative adversarial networks (CANs) add a further twist. The discriminator can assess not only whether the output of the generator is art but also its style (Elgammel et al., 2017). When the discriminator detects the image belongs to a particular style (e.g. Impressionism), then a function called style ambiguity takes over, pushing the generator to produce works in styles that differ from the training set. The goal is to produce aesthetically challenging art by maximising stylistic ambiguity while staying close enough to the boundary to pass as art and minimise audience displeasure. Interestingly CANs respond to this trade-off by choosing greater abstraction – a tendency that may say something deeper about the evolution of art among both human and machine artists.

WHAT IS THIS TREND? (CONTINUED)



Diffusion models are a class of generative models inspired by non-equilibrium thermodynamics. They create coherent images by destroying training data through the successive addition of noise and then learning to recover the data by reversing this noising process. Examples include DALL-E 2, Stable Diffusion and MidJourney that can generate images with a high level of photorealism and caption matching in a matter of seconds e.g. "Van Gogh oil painting of a dog dancing with an alien". create coherent images by destroying training data through the successive addition of noise and then learning to recover the data by reversing this noising process. Examples include DALL-E 2, Stable Diffusion and MidJourney that can generate images with a high level of photorealism and caption matching in a matter of seconds e.g. "Van Gogh oil painting of a dog dancing with an alien". Diffusion models have outperformed GANs on image synthesis and are more stable than GANs that are subject to mode collapse, where they only represent a few modes of the true distribution of data after training, with the result that diffusion models have more diversity in imagery than GANs.

Progress in these areas will be underpinned by hardware advances. The AI chip market is projected to quadruple to $6.7bn in 2022, up from $1.7bn in 2018. Specialised chips, underpinned by cutting-edge deposition technologies such as Atomic Layer Deposition and Epitaxy, pack more computational power into a smaller physical space, using less energy to train and run AI. New computational solutions such as quantum computing (QC) promise exponential gains in computing power, though they will take time to develop as they are more susceptible to errors than conventional computing, especially when operated at scale (Brooks, 2023).

Different styles of art for the prompt 'global warming and planetary destruction' on DALL-E 2

Note: Some argue that generative AI could move content creation from a one-to-many model to one-to-one content consumption model that is more personalised and adapted for different markets and countries.
Source: DALL-E 2 (2023).

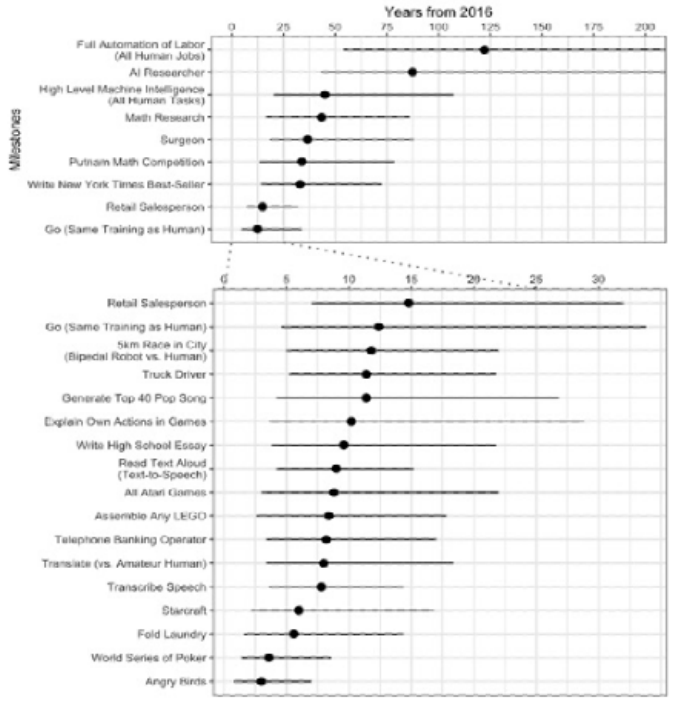
Creative occupations have been resilient in the face of change but there is no guarantee this will remain the case

WHY DOES THIS TREND MATTER?

Rapid automation is making inroads into an expanding set of occupational domains. The prospect of an AI demonstrating artistic creativity has often been considered one of the holy grails of AI – a realm of human activity, deeply personal and subjective that is resilient to disruption. For example, a 2015 Nesta report estimated that 87% of UK workers in creative occupations were at low or no risk of automation. However, this claim is less safe than it was in the past due to the technical developments described on the previous page (Eloundou et al., 2023). Computers are increasingly capable of generating art, videos, music and design indistinguishable from that created by humans, hinting at countless practical use cases. These feats are not surprising. Du Sautoy (2019) observes that a lot of art has pattern and structure behind it that is almost mathematical in nature. Boden (1990) estimates that exploratory creativity – taking what is already there and pushing it to its outer limits while staying within the rules – makes up 97% of all human creativity. Insofar as machines can perform many more calculations than the human brain, they should be well-suited to this type of creativity.

This trend reflects and reinforces a growing fear that the rapid development of AI is releasing something dangerous into the wild, threatening jobs and social cohesion. In a deliberate and highly symbolic move, AI pioneer Geoffrey Hinton quit Google in May 2023 so that he could freely share his concerns about generative AI. Empirically, it is estimated that between 50% and 70% of the overall changes in the US wage structure over the last few decades that has been marked by growing inequality is due to automation (Acemoglu and Restrepo, 2022). Structural change will require developing the right skills in the workforce and ensuring that they are fully utilised by individuals and employers. Without an alignment between the demand and supply of skills, BCG (2020) estimate that labour market mismatches could impose a 11% annual tax on the global economy.

Timeline of median estimates (with 50% intervals) for AI achieving human performance as predicted in 2016



Survey of 352 machine learning specialists predicts AI will outperform humans in many high-level tasks in next 45 years – 50% chance of AI writing New York Times best-seller in 27 years. Note: Timelines showing 50% probability intervals for achieving selected AI milestones. Specifically, intervals represent the date range from the 25% to 75% probability of the event occurring. Source: Grace et al. (2018).

Nonetheless, the prospect of truly creative AI is still some way off while the risk of automation should not be equated with job losses

⚠ WHAT ARE SOME OF THE RISKS, UNCERTAINTIES AND TOPICS OF DEBATE RELATED TO THIS TREND?

There are clear bottlenecks to automation for creative tasks:

AI continues to struggle in less defined creative environments. For all their bells and whistles, natural language models such as GPT-3 based as they are on statistical word-matching have no internal understanding of the world (Bhatia, 2023). They cannot reason about the context in which the tasks they are performing are situated and lack a theory of the phenomenon being modelled that can help mitigate statistical challenges such as overfitting. In the view of Gary Marcus, Emeritus Professor of Psychology and Neural Science at New York University, these models are better understood as 'autocomplete on steroids'. One implication is that word-by-word outputs are only really capable of capturing the local meaning or evolution of a text. Thus, they may be able to tackle some genres like poetry that require less precision, involve regular syntactic and phonetic patterns and often leave more open to the imagination (though even this is disputed). However, they tend to lose coherence once they have to sustain a narrative over longer passages. It is perhaps no coincidence that classic rule-based algorithms still outperform newer deep learning approaches in these tasks due to built-in human guardrails that prevent them from generating nonsense (Holyoak, 2019; Miller, 2019; Hunter, 2023). Humour is another area where machines, in their current form, produce hit-and-miss results. Understanding why a joke is funny – never mind telling one – and employing timing, self-deprecation, irony and sarcasm requires social or situation awareness and an understanding of hidden intention in language (Brena, 2022).

Training sets are highly curated, prone to biases and small relative to the storehouse of human experience (Madsbjerg, 2017; MacCormack et al., 2019). This dependence has been highlighted by recent legal disputes where media companies such as Getty Images have challenged AI companies' use of copyrighted images to train their image-generating algorithms, raising thorny questions about what does and what doesn't qualify for protection and whether there is a need for a new "fair learning" for using copyrighted material in machine learning (Lemley and Casey, 2020). A related challenge is that creativity is rooted in debates about value that change across time and place. This can make it not only difficult to specify creativity in sufficient detail for coding and benchmarking purposes but insofar as creative values accept multiple definitions, there is also likely to be disagreement about whether computers display creativity.

⚠ WHAT ARE SOME OF THE RISKS, UNCERTAINTIES AND TOPICS OF DEBATE RELATED TO THIS TREND? (CONTINUED)

There is a continued preference for creative tasks performed by humans. Jordanous and Keller (2011) find that individuals emphasise intentionality, social interaction and emotional involvement over quality of end result when evaluating whether an act is creative. For Vincent Van Gogh, art was impossible without intention being explicitly defined. Describing his artistic breakthroughs in the late 1880s, he observed: "You must boldly exaggerate the effects of either harmony or discord which colours produce. It is the same thing in drawing—accurate drawing, accurate color, is perhaps not the essential thing to aim at, because the reflection of reality in a mirror, if it could be caught, color and all, would not be a picture at all, no more than a photograph". While these qualities are not absent from human-machine relations, they are often secondary and are one reason why people's moral judgments of machines differ fundamentally from humans even when they perform identical tasks (Carpenter, 2016; Gunkel, 2018; Hidalgo et al., 2021). This is particularly true of deep learning models that resemble black boxes, meaning that humans, even those who design them, cannot understand how variables are being combined to make decisions. This can be seen in the phenomenon of 'AI hallucinations' – the tendency for large language models to make mistakes or generate factual falsehoods that are influenced by their transformer architecture's bias or erroneous decoding rather than the training data. The burgeoning interest in 'explainable AI' reflects the demand for greater transparency and dialogue with machines without sacrificing accuracy and performance (Royal Society, 2019; Rudin and Radin, 2019).

Nick Cave
lyrics by ChatGPT

Verse 1: In the depths of the night, I hear a call
A voice that echoes, through the hall
It's a siren's song, that pulls me in
Takes me to a place, where I can't begin

Chorus: I am the sinner, I am the saint
I am the darkness, I am the light
I am the hunter, I am the prey
I am the devil, I am the saviour

Verse 2: I walk the streets, with my head held high
I've got my demons, but I'll make them fly
I'll dance with the devil, and I'll play his game
I'll be the one, to call his name

Nick Cave and the Bad Seeds
lyrics from Bright Horses (2019)

Verse 1: The bright horses have broken free from the fields
They are horses of love, their manes full of fire
They are parting the cities, those bright burning horses
And everyone is hiding, and no one makes a sound
And I'm by your side and I'm holding your hand
Bright horses of wonder springing from your burning hand

Verse 2: And everyone has a heart and it's calling for something
We're all so sick and tired of seeing things as they are
Horses are just horses and their manes aren't full of fire
The fields are just fields, and there ain't no Lord
And everyone is hidden, and everyone is cruel
And there's no shortage of tyrants, and no shortage of fools
And the little white shape dancing at the end of the hall
Is just a wish that time can't dissolve at all

Verse 3: Oh, oh, oh
Oh, oh, oh, well, this world is plain to see
It don't mean we can't believe in something, and anyway
My baby's coming back now on the next train
I can hear the whistle blowing, I can hear the mighty roar
I can hear the horses prancing in the pastures of the Lord
Oh the train is coming, and I'm standing here to see
And it's bringing my baby right back to me
Well there are some things too hard to explain
But my baby's coming home now, on the 5:30 train

In response to a ChatGPT song written in his style, the Australian singer-songwriter, Nick Cave, dismissed AI as an exercise in "replication as travesty", adding "writing a good song is not mimicry, or replication, or pastiche, it is the opposite. It is an act of self-murder that destroys all one has strived to produce in the past. It is those dangerous, heart-stopping departures that catapult the artist beyond the limits of what he or she recognises as their known self. This is part of the authentic creative struggle that precedes the invention of a unique lyric of actual value; it is the breathless confrontation with one's vulnerability, one's perilousness, one's smallness, pitted against a sense of sudden shocking discovery; it is the redemptive artistic act that stirs the heart of the listener, where the listener recognises in the inner workings of the song their own blood, their own struggle, their own suffering".

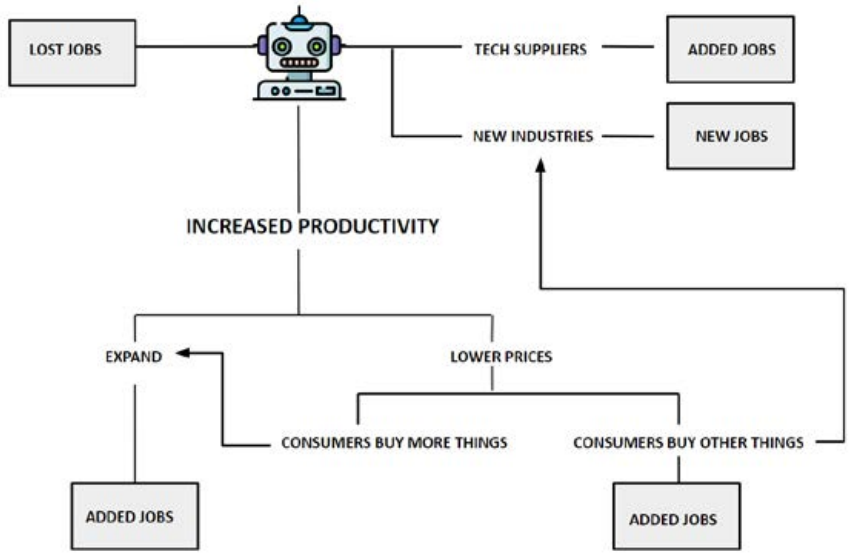
Automation is not a one-way street

⚠ WHAT ARE SOME OF THE RISKS, UNCERTAINTIES AND TOPICS OF DEBATE RELATED TO THIS TREND?

Even if some tasks can be performed by machines, technical feasibility should not be equated with actual employment losses. For example, where wage rates are relatively low – say, in developing countries – investments in technology will be less profitable. Automatability, in turn, is highly contingent on the policy and institutional framework. Acemoglu et al. (2020) find that the US tax code treats capital more favourably than labour, incentivising companies to buy machines rather than add workers. This has led to 'excessive' or 'so-so' automation – automation that is good for the corporate bottom-line but does not materially improve productivity all while displacing workers, reducing employment and incomes below their socially desirable level. History is a reminder that the direction of technological change is highly malleable. Whether technology serves narrow interests or leads to shared prosperity depends on the choices we make about it (Acemoglu and Johnson, 2023).

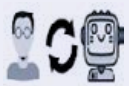
There is a tendency to focus on the negative – rather than the positive – side of the automation ledger. For example, employment losses in activities and sectors affected by automation are often offset by compensatory product demand in other sectors. This is consistent with wealth from high productivity automated technologies being recycled into additional spending elsewhere in the economy. This can spur activities such as those in the creative industries whose demand is strongly income-elastic: as people get richer, they spend proportionately more on them. Periods of intensive automation may also coincide with the emergence of new jobs and industries. Autor and Salomons (2019) find, in recent decades, new job tasks have emerged in three distinctive areas: frontier jobs geared to producing, installing and maintaining new technologies (e.g. search engine optimisation); wealth work providing labour-intensive, in-person services to affluent consumers (e.g. yoga instruction, pet care and myriad forms of counselling); and last-mile jobs performing nearly automated tasks that retain residual set of human activities (e.g. order fulfilment workers and data entry clerks). Many have links – directly or indirectly – with the creative economy.

Myriad impacts of new technology on jobs



Source: ESI (2020) adapted by author.

⚠ WHAT ARE SOME OF THE RISKS, UNCERTAINTIES AND TOPICS OF DEBATE RELATED TO THIS TREND? (CONTINUED)



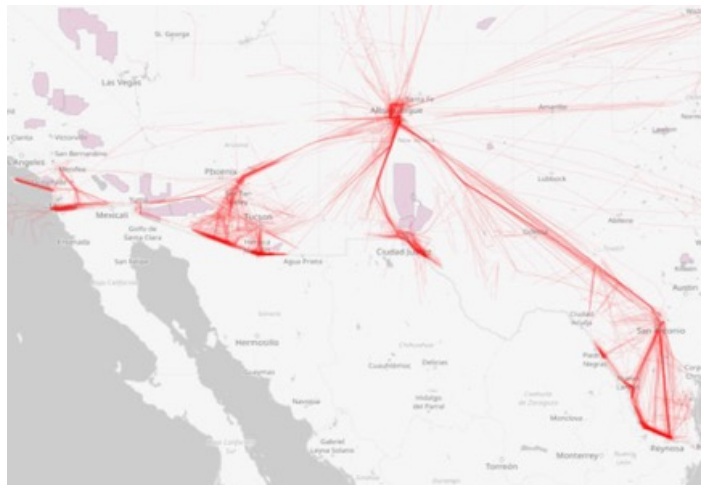
AI is less likely to be involved in creative decisions than be part of the creative teams. Generative AI makes the process of ideation and production much easier, quicker and more cost-efficient – a logic that can be seen in the recent partnership between WPP, the advertising agency and chipmaker Nvidia to develop a generative AI content engine. The careful use of AI can enable artists to break out of ruts and push creativity along new paths (Du Sautoy, 2019). Thus, AI-assisted music composition systems like Open AI's Jukebox, Google's MusicLM and Sony's Flow Machines can learn the style of musicians and find patterns (e.g. chords, tempo, time length from different instruments), making recommendations on where they might go next – an approach that has been successfully used to fill in the gaps of Beethoven's unfinished 10th symphony. Arca, the Venezuelan record producer, described this process in the following terms: "There's something freeing about not having to make every single micro decision, but rather, creating an ecosystem where things tend to happen, but never in the order you were imagining them…It's provided me a sense of relief and excitement that not everything has been done – that there's a wide-open horizon of possibility".

There is likely to be resistance to these approaches but it is worth remembering that until recently, things like sampling, synths and ProTools were rejected as cheating and creatively sacrilegious. Perceptions are now different: in 2022, one in five hits on the Billboard Top 100 were sample based. Even the venerable Beatles have completed a new recording, thanks to AI tools that isolate and separate John Lennon's voice from an old demo tape.

This interdependence between humans and machines also cuts the other way and implies that the human touch is never too far away from seemingly automated processes. For example, recommendation algorithms are discovering the benefits of human involvement in building playlists or picking out clothes, as the success of Apple Music and Stitch Fix demonstrate.

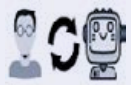
Even newer technologies like LLMs and AI image-generation that have caused so much angst in the creative community remain reliant on the quality and serendipity of human prompts. This has given rise to new fields such as 'prompt engineering' or 'prompt craft'. These roles require high levels of critical thinking -the ability to write clear instructions, break a complex task into a set of simple ones and understand the reasons for misunderstandings and how to prevent them. Jobs sites already feature ads for such roles with some salaries going as high as $335,000. Useful guides, resources and tools that help in optimising a prompt are emerging, with some speculating that prompt engineering will become a foundational skill that everyone needs to know (Faber, 2022; Purtill, 2023; Snow, 2023).

US Customs and Border Protection patrols along the Mexican border



BuzzFeed news used machine learning to find spy planes as part of a major piece of investigative journalism. Models were trained to identify unusual flight paths in the data, taking account of turning rates, speeds and altitudes flown, the areas of rectangles drawn around each flight path and the flights' durations.These insights also apply a granular task level. Newsrooms such as Reuters' Lynx Insight are using machines to analyse data and write basic copy, allowing journalists to concentrate on writing and investigating stories. These use cases have the potential to relieve financial pressures on the industry, especially for beats such as local news that have public value but bring in little commercial revenue.

⚠ WHAT ARE SOME OF THE RISKS, UNCERTAINTIES AND TOPICS OF DEBATE RELATED TO THIS TREND? (CONTINUED)



By extension, automation and augmentation of existing jobs through technology may free up workers to concentrate on high-value tasks. (Noy and Zhang, 2023). This takes on heightened significance for microbusinesses that make up the bulk of creative economy. An interesting perspective is provided by Johnson et al. (1999) in their examination of the UK service sector. In stable environments, organisations can be kept very small without losing a step but need significantly larger operation (~17 employees) in the face of demand shocks – say new funding opportunities. A possible explanation is that overcoming growth constraints entails adding more staff but that requires a formal management structure and more extensive specialisation that, in turn, can only be achieved by a greater scale of operation and new business functions like finance, legal, HR, IT, marketing.

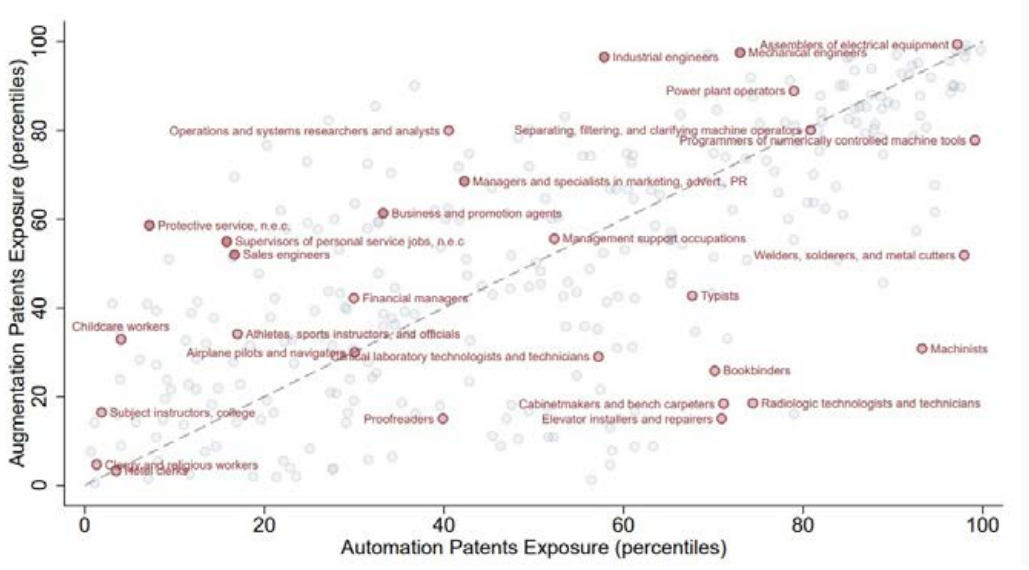
Small organisations may need a senior level professional for these roles but they do not have enough work to occupy the person full time or pay their salary. The alternative – an overreliance on the founder's own human capital, temporary staff and volunteers or simple organisational structures – can have negative effects on service delivery and productivity (Akingbola, 2004; Devins et al., 2005; Lambert, 2015). Automation of these tasks can resolve these dilemmas, enabling creative organisations to scale their businesses more quickly, access expertise that would otherwise be beyond their reach and better concentrate on their core mission. A similar point holds at the individual level: Noy and Zhang (2023) run a randomised trial and find that ChatGPT narrows the performance gap between workers by predominantly benefiting low-ability workers. On a writing task, poor writers got much better; the good writers merely got a little faster. This suggests that these tools could support upskilling, levelling the playing field with those who have more education and expertise.

⚠ WHAT ARE SOME OF THE RISKS, UNCERTAINTIES AND TOPICS OF DEBATE RELATED TO THIS TREND? (CONTINUED)

Automation and augmentation are often two sides of the same coin. Using patent data, Autor et al. (2022) show occupations that are exposed to more automation are also more exposed to more augmentation. Specifically, they find that the employment-weighted cross-occupation correlation between automation and augmentation exposure is 0.67 over the period 1980 to 2018 and 0.58 over the period 1940 to 1980. For some occupations such as managers and specialists in marketing, advertising and PR, the augmentation components of new technology dominated. Augmentation innovations also strongly predict the locus of new task creation, as measured by the emergence of new job titles, across occupations. Eloundou et al. (2022) examine the impact of large language models (LLMs) on jobs: they discover that roles heavily reliant on programming and writing skills show a positive exposure to LLM while science and critical thinking are negatively associated, though the study does not distinguish between labour-augmenting or labour-displacing effects arising from such exposure.

Whether this benign state of affairs will continue is not guaranteed. There is tentative evidence that the demand-eroding effects of automation technologies have intensified in recent years while the demand-increasing effects of augmentation technologies have moderated, casting a shadow over employment and the emergence of new work. This is not inconsistent with the claim that automation may have gone too far in some areas. However, this work is also clear that societies have a choice about how and in what direction to develop technology and that the path it takes is the product of government policies including taxes and R&D spending, collective bargaining arrangements, the supply of skills, market competition and corporate strategies. In this way, incentives can be provided to shift the balance of innovation toward more human-friendly technologies. The impressive progress in developing renewable energy technologies is proof that this can be done successfully (Acemoglu and Johnson, 2023).

US Customs and Border Protection patrols along the Mexican border



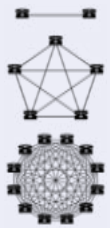
Note: Figure presents a scatter plot of the relationship between occupational exposure to automation and augmentation patents for 1980–2018. Each point corresponds to the average percentile of automation (x–axis) and augmentation (y–axis) exposure of one consistently defined three-digit Census occupation, where the average is taken over 1980–2018 (N = 306 occupations per year). The 45 degree line in each panel is plotted with dashes. Source: Autor et al. (2022).

5 Rise of the platform economy: theoretical and practical considerations

The rise of the platform economy

WHAT IS THIS TREND?

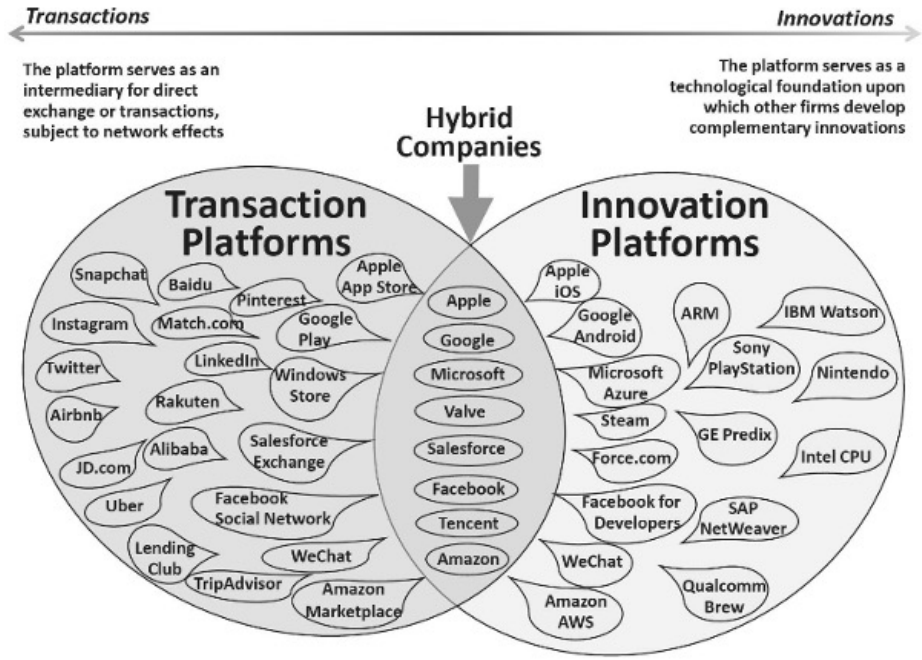
Much of the digital and creative economy is increasingly built on platforms that bring together two or more market actors. Platforms benefit from a combination of high barriers to entry and network effects that can lead to sharply increasing growth rates. This has a number of components:



Establishing a platform is expensive but the marginal cost of adding another user or carrying out another transaction is trivial. The value to someone joining a network is directly related to the number of people already on the network. The result is a virtuous circle in which more buyers attract more sellers, who attract yet more buyers and sellers. The most successful platforms have built multiple types of network effects into their business model – at one point, Facebook enjoyed 6 of the known 13 network effects to create defensibility (Currier, 2018; Jin and Coolican, 2019).

Ability to collect highly detailed information about user preferences. This allows platforms to evaluate the potential market for new initiatives and use their relationships with customers to do highly targeted, preference-based marketing. Consider how Netflix has moved beyond cut-and-paste demographic characteristics that have questionable predictive value and categorises its subscriber base into >2000 taste clusters derived from actual viewing habits.

Many platforms' businesses are highly capital-intensive. This is no less true of 'asset-light' platforms such as Uber and Airbnb that own relatively few capital assets compared to the value of operations but have poured billions of dollars into attracting new users to get network momentum started through aggressive discounts, incentives and subsidies.

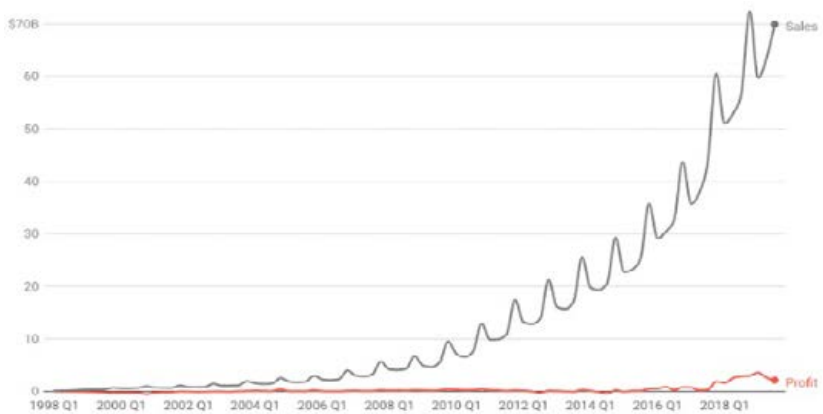


Source: Cusumano et al. (2019

WHY DOES THIS TREND MATTER?

These dynamics make platforms a powerful strategic weapon but raise new questions regarding the welfare effects of bigness. The market capitalisation of the world's largest platforms is testament to their power and reach: in early August 2023, at the time of publication, the market cap of FAAMG (Facebook, Apple, Amazon, Microsoft and Google) as a share of the S&P 500 was 22.6%, slightly down from its peak of 24.5% in August 2020. Accounting measures of performance tell a similar story: Cusumano et al. (2019) compare the largest 43 publicly listed digital platform companies from 1995 to 2015 with a control sample of 100 non-platform companies in the same industries: they find that both groups had a similar level of annual revenues but platform companies were twice as profitable and grew twice as fast as their traditional peers.

Amazon revenue vs. profit



Platform businesses such as Amazon have kept profit and free cash flows artificially low reinvesting money into its business to build scale and barriers to entry in distribution networks and data centres. Source: Amazon.

But building a successful platform is difficult, even for businesses with deep pockets. The history of platforms is littered with the carcasses of businesses that sought to take on incumbents hand to hand – consider Google's repeated attempts and failures to compete with Amazon in e-commerce despite its ability to draw billions of eyeballs to its platforms. Exceptions exist, of course, like TikTok that has emerged as an immensely powerful social media platform with 1bn monthly active users. They are largely explained by the ability of entrants to differentiate themselves from competitors. The new wave of search engines using generative AI will be a further test-case for these principles as they represent a clear alternative to incumbent, Google Chrome. However, differentiation does not guarantee successful monetisation. Thus, in the case of generative AI, it is unclear whether it can be monetised through advertising to the same degree as traditional search. Likewise, it is an open question whether it will generate similar powerful network effects and effectively adapt to mobile, where most search activities take place (MIT, 2023).

Even entering less crowded markets come with challenges for aspiring platforms, including:

- Mispricing and failure to establish which side gets charged and which side gets subsidised in an effort to create network effects (e.g. Sidecar);
- Fragmented local markets encouraging niche competitors and dampening the benefits of scale (e.g. Uber?);
- Failure to develop trust with users and partners due to inadequate rating systems, insurance and payment mechanisms (e.g. eBay China);
- Disintermediation and the ability of users to bypass a hub and connect directly with one another (e.g. Homejoy);
- Multihoming and the ability of users to connect to more than one service (e.g. Twitter?);
- Entering markets too late (e.g. Microsoft's Windows phone);
- Overconfidence (e.g. Microsoft's Internet Explorer dismissal of Firefox and Google Chrome).

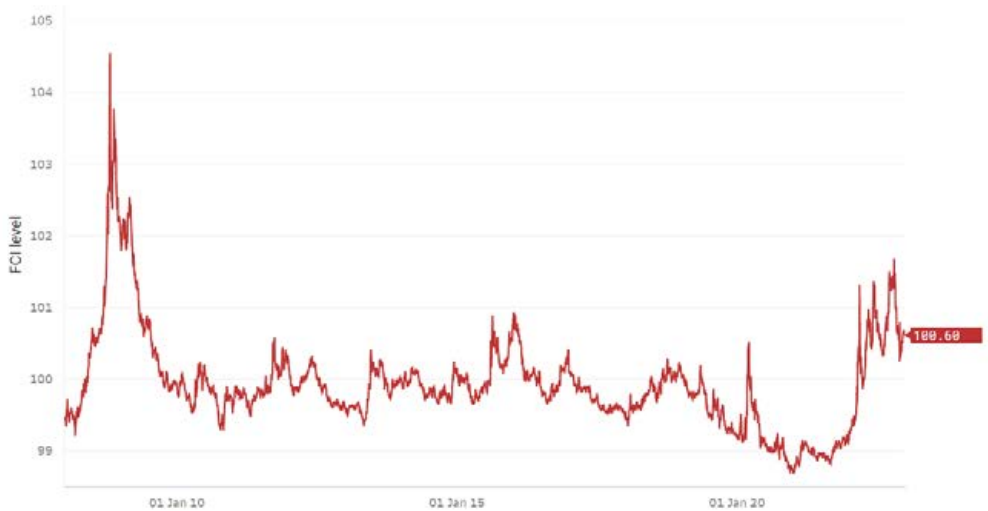
The end of the platform economy as we know it?

⚠ WHAT ARE SOME OF THE RISKS, UNCERTAINTIES AND TOPICS OF DEBATE RELATED TO THIS TREND?

There are uncertainties over how incumbent platforms and new entrants will evolve over the next decade. The explosive growth of platforms and high technology companies has been fuelled by loose financial conditions (see chart on the right), enabling companies to raise significant amounts of money and borrow inexpensively. This was used to subsidise content, rides and deliveries at below-cost to undercut incumbents and woo customers. Investors calculated this strategy would eventually lead to larger market shares, compensating for the early losses. Low interest rates also reduced the discount rate applied to estimate future cash flows of these companies, boosting valuations of more growth-oriented ventures whose peak earnings were projected far into the future. With interest rates today higher and efforts by central banks to shrink their balance sheets, investors are less willing to write these types of large cheques. If these conditions persist, it will make it more expensive for startups to borrow capital, and potentially harder for them to raise it. The beneficiaries of easy money and liquidity – profitless 'unicorn' and technology start-ups, including many CreaTech businesses – will be most impacted. Going forward, investors may attach a higher priority to the near-term resiliency of what they invest in than its long-term relevance, with implications for different creative subsectors and parts of the value chain. It may also impact platform strategies, making it harder for new entrants to challenge incumbents.

More generally, there are growing concerns about the market power concentrated in a small number of platforms and its implications for platform access, data privacy and security, national control of information, fair pricing, tax, labour regulation and potential exploitation of consumers and markets (Parker et al., 2016). Finally, the nature of platforms may change as the need to confront their social, political and economic power obliges them to reflect on the purpose of their operations and their wider responsibilities, including a greater role for hands-on curation.

Global Financial Conditions Index (FCI) 2008-2022



Notes: The Financial Conditions Index gauges the overall looseness or tightness of financial conditions, determining the ease with which finance can be accessed by firms and households. It is based on a broad set of metrics including interest rates, equity valuations, borrowing costs and currency data. Source: Goldman Sachs (2022).

Local platforms have played an underappreciated role in developing countries

WHAT IS THIS TREND?

Homegrown platforms have also been gaining traction notwithstanding the dominance of global platforms in developing countries. One survey of eight African countries identified approximately 300 homegrown platforms operating in sectors as varied as online shopping, professional services, asset sharing, e-learning and transportation (insight2impact, 2020).

WHY DOES THIS TREND MATTER?

Many homegrown platforms help address institutional voids, reducing the costs of doing business. Some offer professional services to creative entrepreneurs who may have never worked in the formal sector, lack access to successful mentors and operate in non-traditional sectors that struggle for resources, information and legitimacy among policymakers.

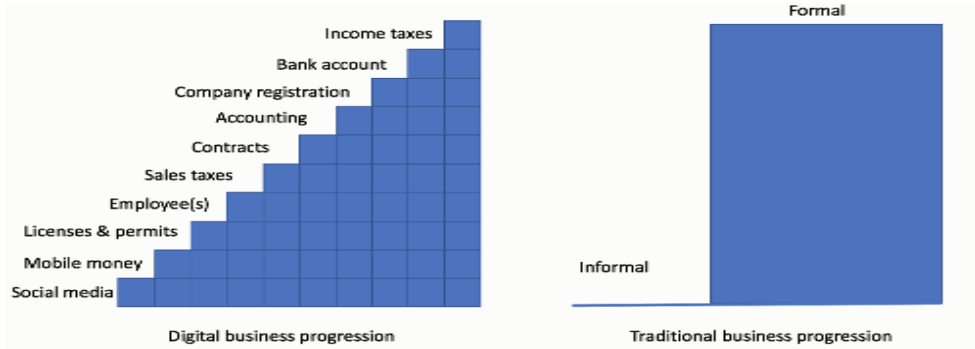
A good example is ConnectAmericas, a free online business-to-business platform developed by the Inter-American Development Bank (IDB) and Google, DHL, VISA and Alibaba.com that provides trade information and business contacts to facilitate firms' internationalisation. Between 2014-16, the platform had connected more than 16,000 firms from almost a hundred countries with firms from Brazil, Colombia, Mexico and Peru accounting for the lionshare of registrations. A rigorous evaluation of the scheme found that exports increased by 1.8-1.9% in response to one additional day working with the platform which is equivalent to almost $1,050 additional exports per extra day for the average firm. Benefits accrue on both the intensive and extensive margins of trade, that is, through higher export volumes and the greater likelihood of exporting. Effects are particularly strong for less familiar markets and destinations with more participating firms, confirming the matchmaking function of platforms (Carballo et al., 2020). A similar scheme is the Electronic World Trade Platform (eWTP), an Alibaba-led initiative to allow African traders to sell their goods in the Chinese market.

Platforms offer a bridge or escalator to formalisation. Entrepreneurs can approach formalisation on their own terms at lower cost and risk, weighing the trade-off between formalisation gains and its costs, ensuring that value is still created even if they do not reach the summit.

WHAT ARE SOME OF THE RISKS, UNCERTAINTIES AND TOPICS OF DEBATE RELATED TO THIS TREND?

Homegrown platforms in developing countries nonetheless lack the scalability of global platforms. There are exceptions – Sea Group, based in Southeast Asia, is the world's fastest growing platform; but generally platforms do not have enough users for self-sustaining user base growth given low disposable incomes and willingness to pay among private users. This may lead platforms to focus on the needs of business customers with the highest willingness to pay at the expense of services aimed at retail customers (Graham, 2019).

Digital vs. traditional formalisation process for businesses



Source: Ng'weno and Porteous (2020).

E-commerce has been a big winner of the digital and platform economy

WHAT IS THIS TREND?

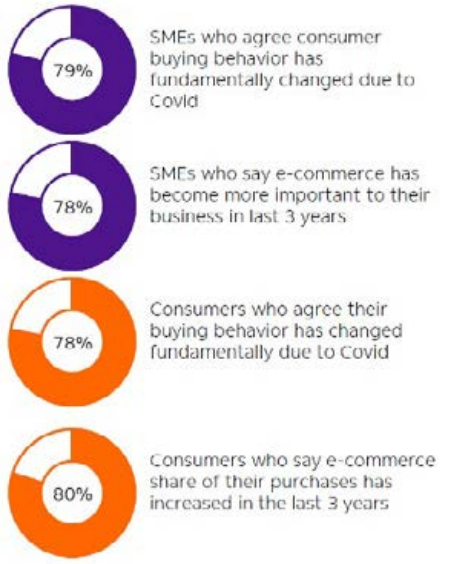
Digital transformation of economies is rapidly shaping how individuals and businesses are buying and selling goods.

WHY DOES THIS TREND MATTER?

The global ecommerce market was estimated to be worth between $3.4tn and $5.7tn in 2022 (Keenan, 2022; Goldman Sachs, 2023). China, US, UK, Japan and South Korea make up the world's five largest retail ecommerce markets in absolute terms while countries such as Indonesia, India and Malaysia have experienced rapid growth (see next page). E-commerce as a percentage of addressable retail jumped sharply during the pandemic as consumers migrated to 'contact free' activities: the UK went from 20% penetration to over 30% in two months – tantamount to 7 years growth. Countries such as Italy that traditionally preferred to shop in person also migrated to e-commerce (Satariano and Bubola, 2020). E-commerce platforms with an emphasis on the creative industries became pandemic darlings – today Etsy has 88.3mn active buyers, up from 44.2mn in 2019. The mix between online and offline spending has now normalised as shops have reopened, though they are still above pre-pandemic levels, supporting the idea of a structural channel shift to online.

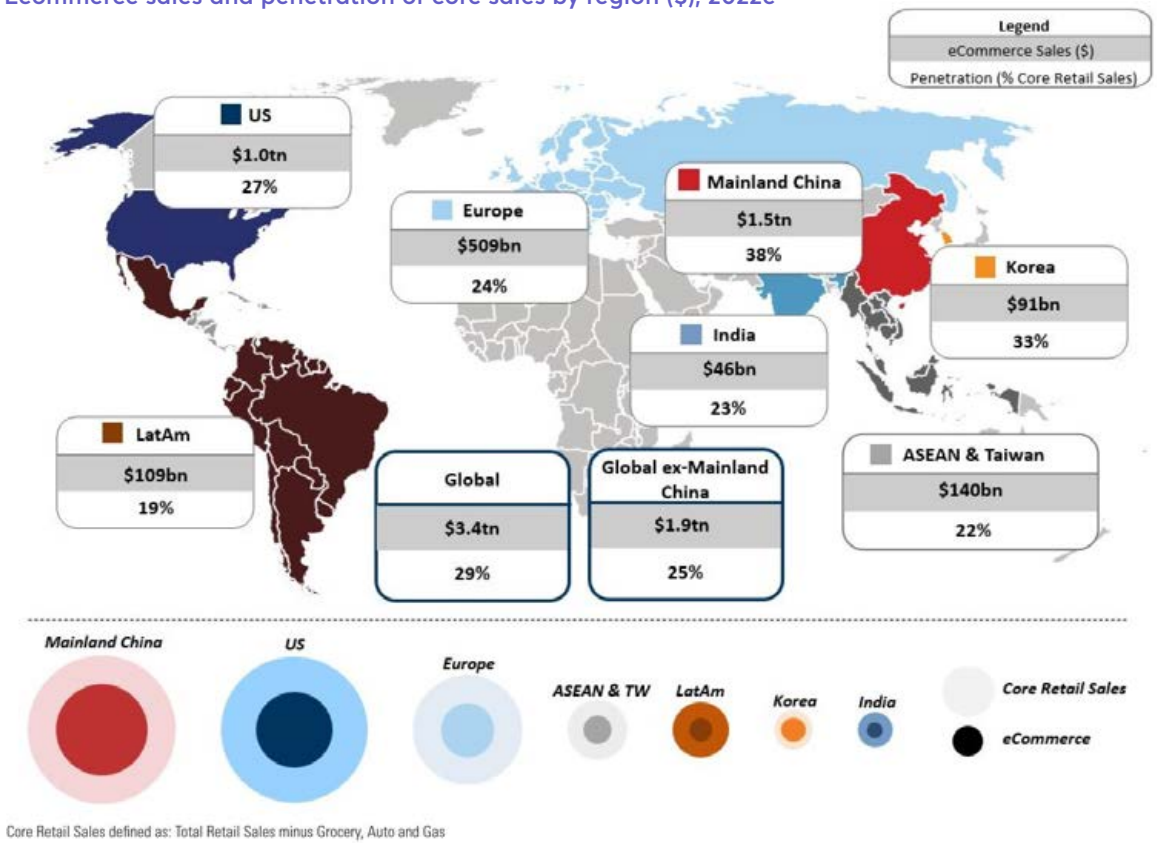
E-commerce, paired with fintech and social media marketing, has powered new direct-to-customer (DTC) brands that are online-only or online-first. DTC business model is particularly suitable for products where distribution costs are low % of sales value. This includes design-intensive goods that are high-value and low physical volume categories. For example, DTC watch sales are expected to increase from 20% of overall sales in 2019 to ~30% in 2025 (BOF, 2021). Other companies are integrating social shopping with social commerce sales expected to triple by 2025. The Chinese ecommerce platform Pinduoduo allows buyers to form groups and negotiate discounts from suppliers with nearly all transactions on the platform completed in this way.

Covid-19 pandemic had a significant effect on attitudes to e-commerce



Source: FedEx (2022).

Ecommerce sales and penetration of core sales by region ($), 2022e



Core Retail Sales defined as: Total Retail Sales minus Grocery, Auto and Gas

Source: Goldman Sachs (2023).

Business to consumer e-commerce market value 2021

Market	E-commerce market value ($bn)	E-commerce compound annual growth rate (2017-2021)
Indonesia	13.6	34.6%
India	36.5	26.5%
Malaysia	4	24.0%
Vietnam	6.2	18.9%
Mexico	22.6	12.6%
Thailand	26.2	12.5%
Turkey	11.6	12.0%
Canada	46	10.8%
Brazil	23.8	10.7%
Hong Kong	3.7	10.2%
US	744.1	10.2%
China	1149	9.2%
Australia	33.1	8.9%
New Zealand	4	8.7%
Singapore	4.9	8.4%
Japan	150	6.2%

Source: JPM (2019).

⚠ WHAT ARE SOME OF THE RISKS, UNCERTAINTIES AND TOPICS OF DEBATE RELATED TO THIS TREND?

E-commerce is less suitable for some product categories and business models. Examples include categories (e.g. women's apparel) with higher return rates – and by extension costs related to returns logistics and markdowns and categories (e.g. fast fashion) with lower item value and basket size in categories that incur higher shipping costs as a percentage of sales.

Not all creative subsectors have embraced e-commerce. The reputation of major platforms as 'everything stores' sits uneasily with creative categories such as craft, artisanal and luxury goods that emphasise exclusivity. The wholesale model used by online retailers also clashes with the concession model preferred by these businesses that offers more control, less discounting and ability to move inventory.

Room for improvement for SMEs and microbusinesses on service quality. There is a significant gap between SMEs' belief in their own performance levels across a range of customer experience metrics (e.g. delivery times) and consumers' less positive experience of these realities.

Increasing regulatory scrutiny of online marketplaces that own the platform and compete against third parties by offering their own products. Larger platforms have been accused of using data about independent sellers on its platform to develop competing products (Wall Street Journal, 2020). Academic research points to a range of motivations behind the decision of tech companies to compete on their own platforms – not all negative – so welfare implications need to be carefully evaluated (Zhu, 2018).

Logistical and transactional barriers are holding back the growth of e-commerce in many developing countries. They range from the need for expensive physical operations such as call centres, warehouses and distribution infrastructure to consumers lack of familiarity with online platforms to low financial account ownership (World Bank, 2022). In response, policymakers in countries such as China, Egypt, India and Vietnam have directly subsidised the expansion of e-commerce. Rigorous experimental evidence from one programme introducing e-commerce into Chinese villages found sizable gains among certain, but not all, rural households – typically ones that were younger, richer and in more remote markets. Benefits occurred mainly on the consumption side (lower prices, higher convenience and increased product variety) rather than the production side (increased online selling activity and purchases of production inputs) while gains were due to overcoming logistical rather than transactional barriers (Couture et al., 2021).

6 Distributional effects of digitisation: blockbuster vs. long-tail strategies

Trends shaping the future of the Creative Industries

The democratisation of content creation and distribution

WHAT IS THIS TREND?

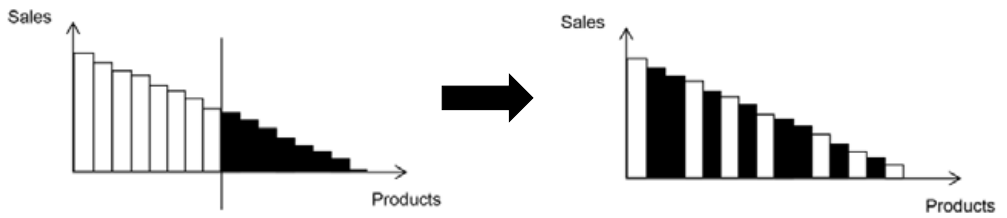
Digitisation has reduced the costs to create content, while simultaneously easing distribution bottlenecks such as limited number of cinemas and limited shelf space in bookshops that privileged small numbers of mass-appeal products. DIgitisation has been particularly beneficial for products that are born digital, produced as digital files rather than physical products, as well as digital distribution direct to consumers.

WHY DOES THIS TREND MATTER?

Digitisation creates opportunities for businesses to make a larger number of profitable products, lowering the revenue threshold for profitability. This reflects the additional value that consumers derive from being able to find obscure products that better match their tastes. Brynjolfsson et al. (2010) estimate that consumer gains from increased product variety in the US book market quintupled from $700mn-1bn to $4-5bn between 2000 and 2008. Other estimates suggest that digitisation has increased sales by about 10% in the movie industry and 50% in television (Waldfogel, 2022).

The effects of increased product variety online may be even larger reflecting the 'nobody knows anything' property of creative and cultural markets (Aguiar and Waldfogel, 2018). While publishers, labels, studios and other gatekeepers with veto power strive to predict which products will become hits, the process is imperfect: in particular, they may decide not to release a product that would have been commercially successful. As technology gives previously undiscovered talent access to market, some products may land in the head of the sales distribution rather than just the tails – with larger benefits for creatives and consumers. Waldfogel (2022) estimates that the welfare benefits of the 'random' long tail are 4-13 times larger than the benefits of the 'conventional' long tail with effects largest for music, followed by television, books and movies.

The evolution of distribution models has changed the very definition of what counts as a 'hit' or a 'miss'. For example, many programmes cancelled on television ('tail') feature regularly among the most popular shows ('head') on Netflix or Amazon. In a similar vein, the epitome of 'tail' content, YouTube, now has 50% of its global watch time from content that would be defined 'head' content (Barclays, 2021).



Top: open bars represent sales of products that were in the market before digitisation, while shaded bars represent sales of products facilitated by digitisation. This figure represents the conventional long tail view according to which products facilitated by digitisation have lower overall sales. Source: Manso (2022).

Bottom: open bars represent sales of products that were in the market before digitisation, while shaded bars represent sales of products facilitated by digitization. This figure represents the random long tail view according to which some products facilitated by digitisation may be breakthroughs and have higher overall sales. Source: Manso (2022).

WHAT ARE SOME OF THE DRIVERS AND CHARACTERISTICS OF DIGITAL MARKETS THAT BENEFIT NICHE CONTENT?

Production is now easier and less expensive thanks to the proliferation of digital tools, benefitting smaller players. Examples include ProTools for music creation, CALA for fashion design; Roblox for video games, Substack for subscription newsletters and high-quality cameras (e.g. lidar cameras) in every pocket for filmmaking. This trend is exemplified by video games like Minecraft that was initially developed by an amateur programmer on a bedroom computer before going on to sell nearly 250mn copies and be inducted into the World Video Game Hall of Fame. A similar story played Candy Crush Saga, the multi-billion dollar mobile game franchise (Goldberg and Larsson, 2014). Entry barriers have fallen to the point where businesses can harness AI to build models and apps with minimal coding skills. Gartner (2022) predicts that low/no-code tools will power more than 70% of new apps by 2025, a 45% increase compared to 2020. Tools that can help save time and costs are particularly useful insofar as outcomes like getting content to go viral are often a numbers game (Berger, 2013; McKinsey, 2023). Interestingly, many of these tools are themselves built on open-source code. To date, they have benefited from the giant models made available by the large companies. Transparency and the willingness to share data are common during the early development of a new technology, so it is possible that they give way to greater secrecy as technology moves nearer to commercialisation and competition and safety fears grow.

A larger number of part-time or hobbyist creatives are now able to sell their content as a result of these trends. Using US data, Waldfogel (2022) finds that total earnings of creative workers have risen consistent with a larger creative workforce but average earnings per worker have fallen. Manso (2022) attributes lower average earnings for creatives to the role of experimentation: individuals can more readily enter the creative market, learn if they are likely to be successful and, if not, exit to other types of employment.

Low-code/No-code creators tools

Source: BofA (2023).

WHAT ARE SOME OF THE DRIVERS AND CHARACTERISTICS OF DIGITAL MARKETS THAT BENEFIT NICHE CONTENT? (CONTINUED)

Peer recommendations, online reviews and aggregation tools increasingly allow consumers to discover and buy more niche products.

- Abundant information allows **individuals to judge product quality directly** rather than rely on established brands and other costly proxies (Simonson and Rosen, 2014).
- **Herding is less likely when consumers have access to outside information about the products they are evaluating** (Godinho de Matos et al., 2018). Salagnik et al. (2006) show that even a minor perturbation in the information available to consumers can fundamentally change how they rank and perceive the quality of otherwise identical cultural products.
- **Mixed evidence for a popularity bias in recommendation engines**. This refers to the tendency to favour already popular items as part of efforts to predict what users might benefit from experiencing, as popularised by the Matthew Effect. On the other hand, there has been an increased use in content and contextual data that enrich the quality and diversity of recommendations. Consistent with these changes, Hesmondhalgh et al. (2023) find a shift down the long tail for UK streamed music since 2018. Tucker and Zhang (2011) also find that people discount popularity information for broad appeal products – the intuition being that if everyone is consuming a product with narrow appeal, then it must be truly excellent whereas lots of people buy popular products simply because they have widespread appeal (Tucker and Zhang, 2011).
- **Online product categories influenced by peer recommendations exhibit more diverse consumption**. In the book market a doubling the level of peer influence is found increases relative revenue of least popular 20% of products by about 50% (Oestreicher-Singer et al., 2009).
- **Popularity information 'people who bought this also bought' found to have disproportionate benefits for niche products**.
- **Limited evidence that having too much information will overwhelm consumers** (Scheibehenne et al., 2010).
- **Anonymity offered by online transactions permits individuals to consume unconventional and niche goods without fear of negative social judgment** (Goldfarb et al., 2015).

Importance of recommender systems

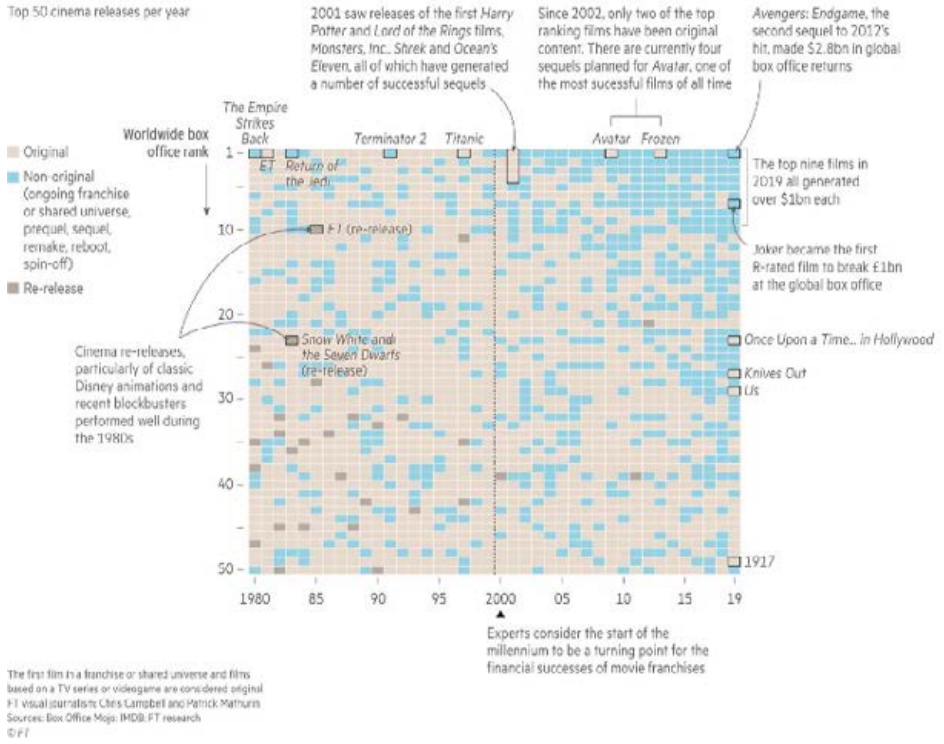
Source: Citi (2019).

WHAT ARE SOME OF THE RISKS, UNCERTAINTIES AND TOPICS OF DEBATE RELATED TO THIS TREND?

The death of blockbusters appears to have exaggerated. Simply because digitisation has facilitated long tail processes does not mean that every long-tail product will be successful. Indeed, at an individual level, the long-tail may not represent a commercially viable strategy as most products sink without a trace. Consider how Spotify now has over 100mn tracks on its platform with 100,000 tracks uploaded daily and approximately 450mn monthly active users yet ~80% of music tracks have been streamed less than 5000 times across their entire lifetime. The accompanying unpredictability of the long-tail contrasts with larger-scale products that are more expensive but relatively less risky.* There is a clear logic to the resilience of blockbusters, one that is rooted in the changing nature of creative markets:

- Technology is expanding the scope and reach of markets so that consumers can enjoy top performers rather than having to settle on second best, reinforcing winner-take-all outcomes (Rosen, 1981).
- In globally integrated markets, there is an incentive to produce 'crowd pleasers' or 'tentpole offerings' that provide enjoyment to broad and heterogeneous audiences (Hennig-Thurau and Houston, 2019).
- Production budget and branding – sequels, reboots, book adaptations – continue to serve as signals for quality and attract consumer attention in a world where it is extremely difficult to forecast demand. In the film industry, there has been a decades-long trend of 'sequelitis', though perhaps sensing audiences growing fatigue with the reliance on sequels, studios have begun to use franchises as a vehicle for experimentation. Paradoxically, the shared storytelling universe to which these films belong provides audiences with a degree of familiarity and comfort that can offset the risk of using new or less mainstream creative voices. Examples include director Patty Jenkins' success with DC Comics *Wonder Woman*, Cary Fukunaga's stewardship of James Bond's *No Time to Die*, Chloe Zhao and Taika Waititi's contributions to the Marvel stable. This balancing act appears consistent with moviegoers demand for novelty: they want a bit of novelty, but not too much (Luan and Kim, 2022).

Top 50 cinema release per year



Source: FT (2020).

*Contrasting findings about the success of the long-tail and blockbuster strategies are partly an artefact of the measures used to analyse trends. Measures of absolute counts of different products sold show an increase in consumer purchases of long-tail products, while measures focussing on the percentage of sales revenue concentration in the top products conclude that superstars still dominate, highlighting how a relatively small number of products make up a majority of the sales. Paradoxically, greater availability of long tail products (with low sales for each product) can increase the appearance of concentration in the hit products, even with no changes in sales for existing products (Benner and Waldfogel, 2023).

⚠ WHAT ARE SOME OF THE RISKS, UNCERTAINTIES AND TOPICS OF DEBATE RELATED TO THIS TREND? (CONTINUED)

More generally, there remain limits to how far consumers will give up brands in favour of smaller names or niche products:

- Online information still falls short as an objective guide to product quality for consumers due to fake reviews and manipulation. Verified purchases, one-tap systems, automated detection technology and other countermeasures have been only partially effective in curbing this activity.
- Inequalities in digital literacy frustrate individuals' ability to take advantage of new information – one study of branded products with close substitutes estimates that the market share of aspirin would fall by more than 50% if everyone was as informed as pharmacists (Bronnenberg et al., 2015).
- Brands remain valuable in terms of providing meaning and satisfying emotional needs beyond reducing uncertainty (Han et al. 2010).
- The strongest evidence for importance of brands in the wider economy can be seen in the fact that on a risk-adjusted basis, simply holding the top 30 global brands in a portfolio has historically delivered nearly double the return of the market over the period 2006-2018 (Citi, 2021).

Opportunity cost of a star for apps

Jumping from...	To...	Is expected to increase App Store conversion by... (%)
★	★★	30
★	★★★	340
★	★★★★	730
★	★★★★★	770
★★	★★★	280
★★	★★★★	540
★★	★★★★★	570
★★★	★★★★	89
★★★	★★★★★	97
★★★★	★★★★★	4

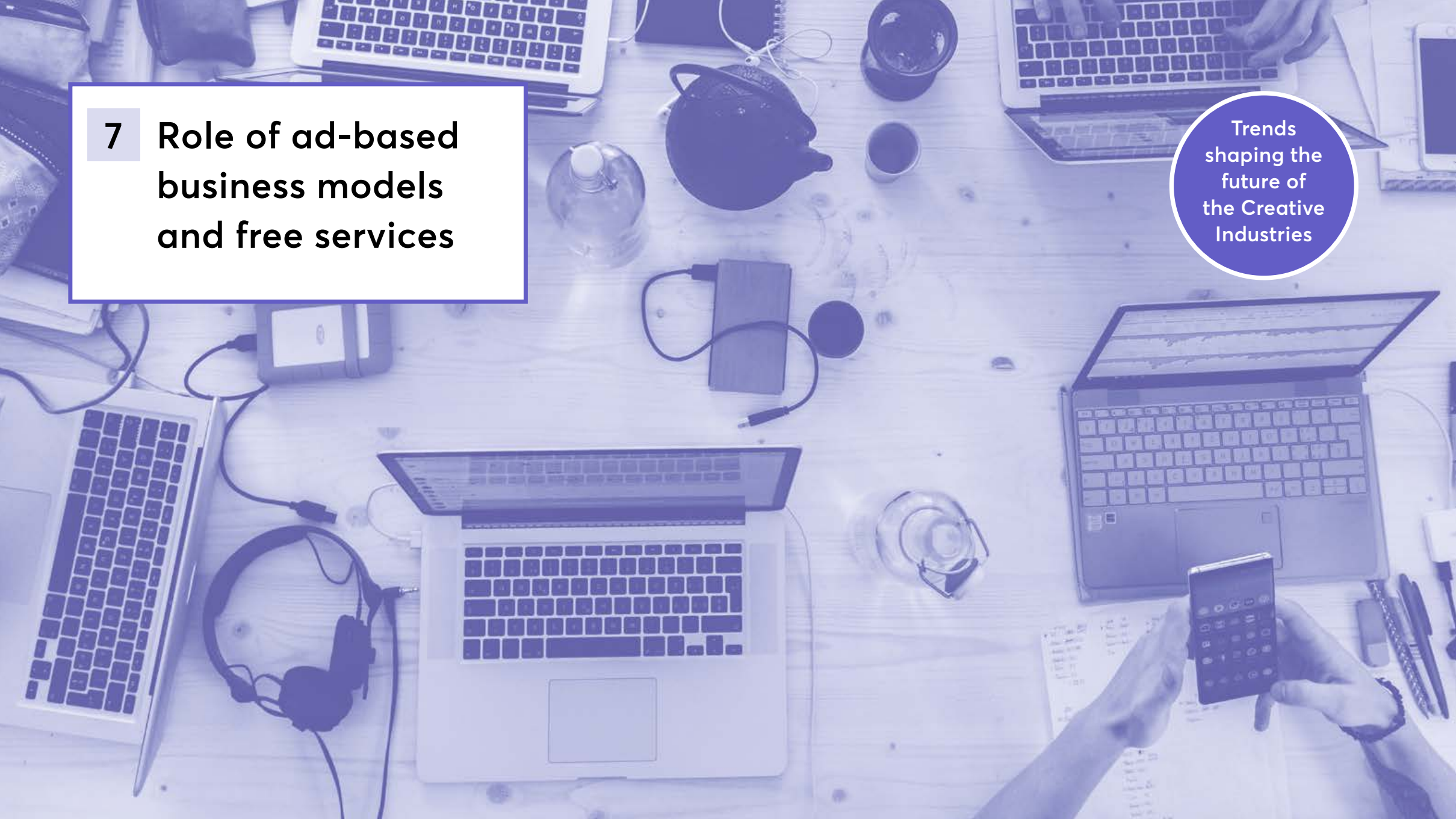
Based on 2018 research and includes both iOS and Android apps

Source: Apptentive
© FT

Ratings are the 'lifeblood of the mobile app world' and have a strong impact on conversions. Nonetheless apps rating prompts, seemingly random, are being programmed to appear only when users are most likely to leave a five star review such as after user achieves a high score or just been paid for the month. Source: FT (2020).

7 Role of ad-based business models and free services

Trends shaping the future of the Creative Industries



Advertising is a significant part of digital business models

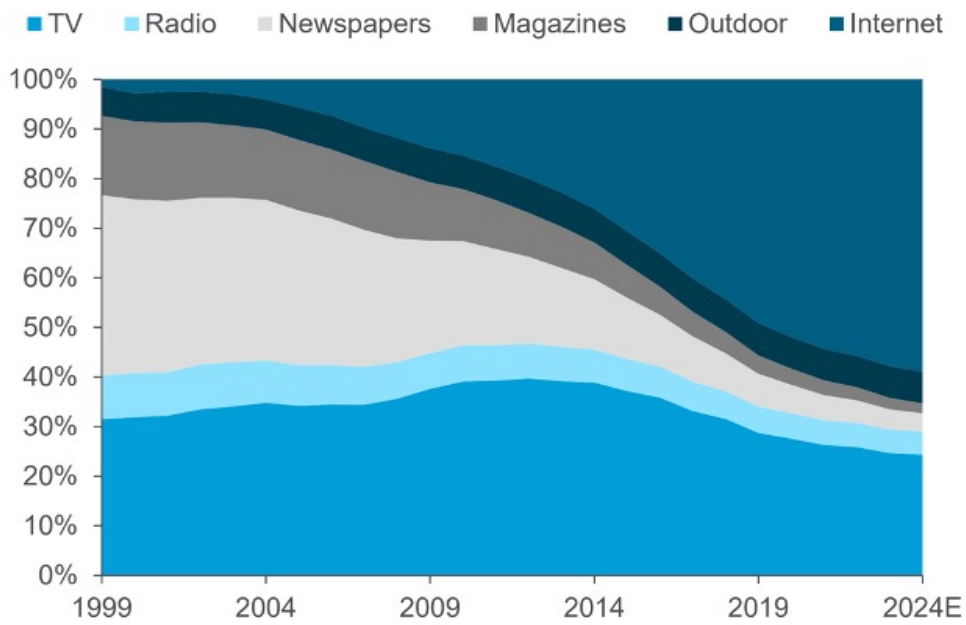
WHAT IS THIS TREND?

Many online content and services rely on attracting consumers' attention and gathering data about them, which they use to sell targeted advertising placements to third parties. This business model is not new: newspapers have been generating revenue through advertising for hundreds of years. However, it has become so entrenched that it is easy to forget the roads not taken, leading some commentators to describe the ad-based business model as the Internet's original sin (Zuckerman, 2014).

WHY DOES THIS TREND MATTER?

In 20 years online advertising has gone from nothing to a ~$500bn industry. Digital accounted for almost two-thirds of global ad revenues in 2021 compared with little more than a quarter in 2014. Google, Facebook and Amazon accounted for 74% of worldwide digital-ad spending in 2021. Google and Facebook derive bulk of total revenues from advertising (Google=81%; Facebook=97% in 2Q2022) while Amazon sold close to $40bn of advertising in 2021 which is larger than the reported revenue for Prime and than the entire global newspaper industry (Evans, 2023). Every digital surface is now a potential canvas for targeted advertising. Bidstack's technology, for example, seamlessly weaves ads into native gaming environments from cityscape billboards to car skins to pitch side hoardings in football games.

Global Advertising Share by Media



Source: GroupM (2020).

? WHY DOES THIS TREND MATTER? (CONTINUED)

The value proposition of online advertising is broadly understood. One meta-study of 432 online display ad field experiments finds that campaigns, on average, increase site visits by 17% and sales conversions by 8% (Johnson et al., 2017). But effects are highly heterogeneous with negative returns in some cases (Blake et al., 2015). They are also more modest than industry correlation-based estimates that can overstate ad effectiveness by up to 4000% (Aral, 2020). Disentangling this heterogeneity suggests that paid search advertising is most effective for new and infrequent customers and/or small and unfamiliar businesses. This is consistent with the informational role of advertising in building brand awareness and contrasts with the prevailing view among brands that new prospects have lower value than high value, repeat customers (Dai and Luca, 2016).

Trends have coincided with a collapse in traditional print media advertising. The story, however, is more complex than a shift from newspapers to digital as most ad money flowing to Google and Facebook is new money from SMEs and local businesses that generally did not participate in traditional advertising market (Evans, 2020). By contrast, television has held up much better than other traditional media. Print media must also navigate the complexity of the online ad industry: even when newspapers and magazines can monetise inventory on their sites, they are at the end of long chain of intermediaries that eats into the share of ad spend they receive. PWC (2020) estimates that at least half of a brand's digital marketing spend is absorbed before reaching a publisher with nearly third of those ad-placing costs being completely untraceable.

The structural decline of newspapers and magazines that accelerated during the pandemic has had far-reaching consequences: in the US, newspapers have lost almost half their newsroom staff since 2008 with risks for the quality and sustainability of journalism that is an important pillar of civic life and political participation. This decline is also driving consolidation as businesses struggle with shrinking margins on ad-supported media. This trend is spreading from legacy media to digital upstarts (e.g. BuzzFeed and HuffPost), raising questions about the impact of market concentration on media diversity and freedom of expression.

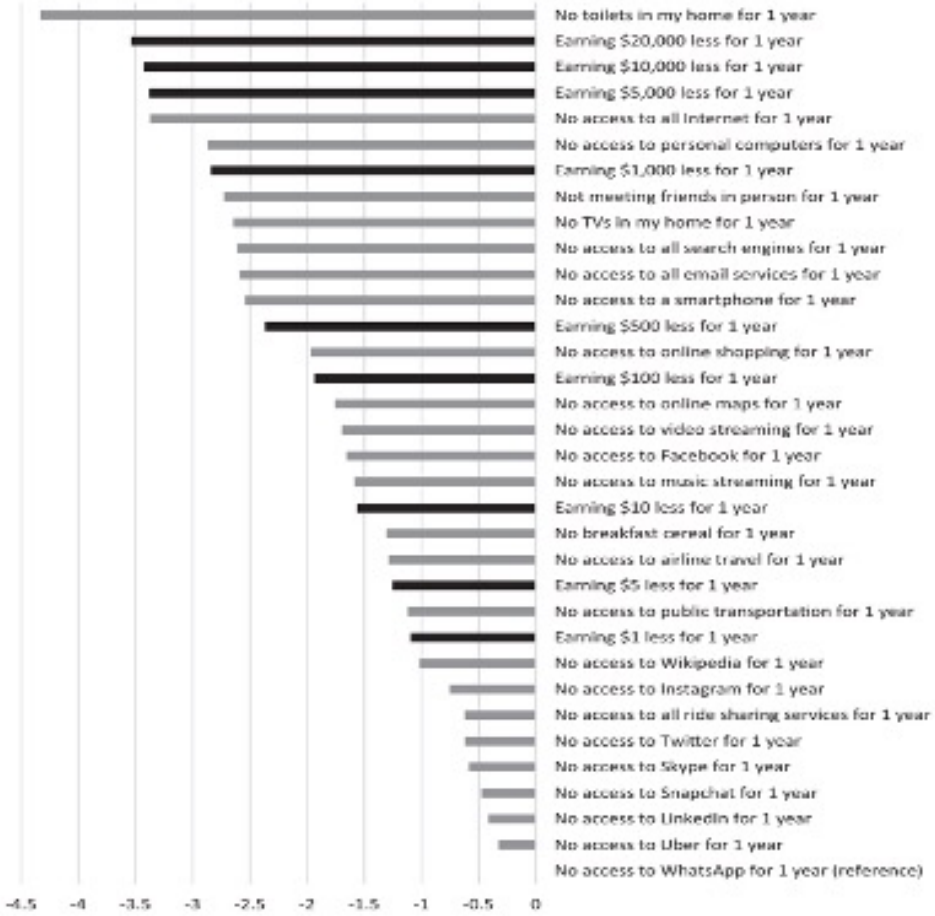
Free services are central to ad-based model but they are no free lunch

⚠ WHAT ARE SOME OF THE RISKS, UNCERTAINTIES AND TOPICS OF DEBATE RELATED TO THIS TREND?

Online services, currently provided for free, provide large monetisable benefits that are not properly captured in GDP statistics. For example, search engines provide instant access to information while social media enable people to connect with friends and family and share creative content with one another. Brynjolfsson, Collis and Eggers (2019) find that median user would require $48 to willingly give up Facebook for 1 month with lower income households valuing free services more. The value of digital goods can be seen in rankings with different nondigital goods/price points.

But estimates of the welfare effects of free services are not always reliable. For example, they may be biased by the fact that those who own a Facebook account may value it disproportionately or irrationally by virtue of owning it akin to an endowment effect. They may also be skewed by the absence of realistic alternatives to major social networks and messaging services. Estimates also do not account for the possibility that deactivation of services might help people learn their true valuation of them. For instance, that services actually make users unhappy, leading them to use and value services less than they otherwise would (Allcott et al., 2020).

(Dis)Utility according to Best-Worst Scaling



This figure shows the disutility suffered by losing access to each of these goods or earning a specific amount less for 1 year ranked from most to least valuable. Source: Brynjolfsson, Collis and Eggers (2019).

Quid pro quo of free services is harvesting of user data, underpinned by sophisticated tracking technologies.

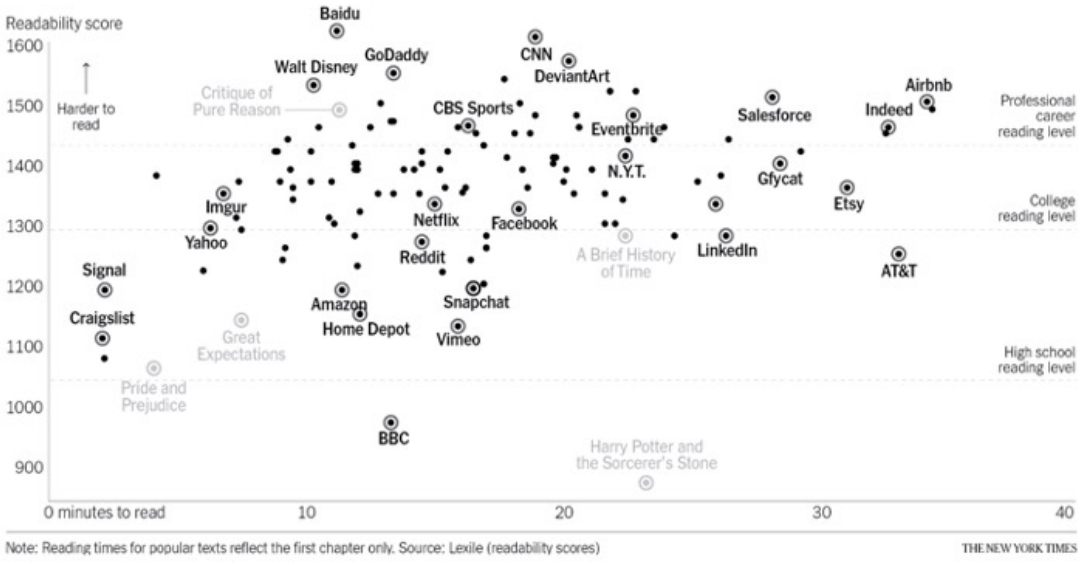
Detailed portraits of users can be constructed across multiple points of observation: websites, email, mobile apps, physical addresses via GPS and increasingly IoT device identities. Techniques such as session replay are able to record every keystroke, mouse movement, clipboards and scrolling behaviour of pages visited.

The app economy has given rise to similar techniques: device IDs – backbone of mobile app tracking – have a longer lifespan than traditional web-based cookies. One study of 1mn apps found that the average app hosted 5 tracking companies with 18% of apps containing over twenty different trackers (Lerner et al., 2016; Binns et al., 2018).

Wider data harvesting practices – consent, disclosure and anonymisation – also raise concerns about possible invasion of privacy.

- Privacy policies are typically dense legal documents that few people read and even fewer can truly understand.
- Anonymisation is not watertight: 99.98% of individuals in US were correctly reidentified in any available 'anonymised' dataset by using only 15 characteristics, including age, gender and marital status (Rocher et al., 2019).

Reading level and time (in minutes) required to read internet privacy policies



Source: New York Times (2019).

But the ad-based business model is at a crossroads

⚠ WHAT ARE SOME OF THE RISKS, UNCERTAINTIES AND TOPICS OF DEBATE RELATED TO THIS TREND? (CONTINUED)

Advertising in a 'cookieless' world. Regulatory pressure and industry action are forcing changes in the adtech ecosystem. In January 2020, Google sent shockwaves ('Adblockalypse' and 'Cookie Armageddon') through the industry by announcing that it planned to phase out support of third-party cookies in Chrome that dominates the global desktop internet browser market. This has been mirrored by recent changes in the app economy. Apple's iOS 14 requires app developers to ask users for permission to track their mobile device or IDFA identifier for advertising purposes. Traditionally few people bothered to opt out and it is widely expected that most will not voluntarily consent to giving their data, thus censoring some datapoints entirely while severely limiting the volume of post-ad click conversion data on which marketers have relied (Schiff, 2020).

These changes are viewed as 'wins' for privacy but may end up making incumbents more powerful. Impacts are likely to fall more heavily on smaller publishers who lack an established, regular user base and depend on these techniques for user profile data. Without the ability to sell targeted ad space, publishers will have less scope to charge advertisers a premium.

Estimates vary about the impact of these changes on ad revenue: some research shows that ad prices double when ad impressions contain a cross-site cookie identifier and allow behavioural targeting of users (Ravichandran and Korula, 2019; Johnson et al., 2020). Deighton and Kornfeld (2020) suggest an end to all third-party tracking would, by 2025, reduce annual revenues of smaller US publishers by $24-29bn or approximately 50%. At the same time, they observe this money will be redistributed rather than lost from the system, creating a windfall for 'walled garden' publishers and to a lesser extent large integrated firms whose deep first-party data relationships with users are sufficiently deep that they can thrive without cross-website tracking. Some changes are already apparent: Presently, 60% of ad dollars are spent within walled gardens notwithstanding the fact that only 34% of time spent online is within them (Barclays, 2023).

To mitigate these losses, smaller publishers will need to update their approaches to obtaining and managing data. For example, News UK, Reach, Guardian News, The Telegraph and Stylist Group have developed the Ozone Project, an alliance that offers brands and advertisers large-scale audience samples and buys across brand safe areas.

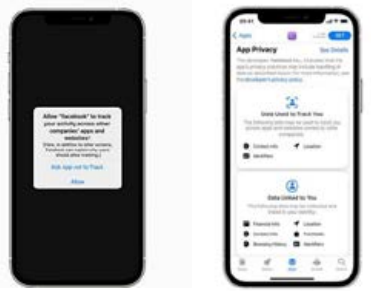


Illustration of how tracking notifications will looks in iOS14.5 and how apps will have to display information about the data they are collecting. Source: FT(2021).

⚠ WHAT ARE SOME OF THE RISKS, UNCERTAINTIES AND TOPICS OF DEBATE RELATED TO THIS TREND? (CONTINUED)

Beyond changes in the adtech ecosystem, other cracks are appearing in a business model that once appeared impregnable:

- **Advertising expenditure is strongly procyclical** meaning that revenue streams are vulnerable to economic shocks, though digital ad-spend appears to be more resilient than offline ad spend (Hall, 2012).
- **Consumer protection and quality risks** Caffarra et al. (2020) suggest that large ad-funded platforms (e.g. Google Android) have weaker incentives to internalise the interest of consumers than device-based platforms that (e.g. Apple). While Apple can capture the benefits of investments in the quality of its app store by charging a higher price for its iPhone, no such direct appropriation mechanism exists for Google, suggesting its revenues and profits are less tightly linked to the quality of the ecosystem.
- **Fraud, viewability and measurement errors** reflecting the inherent lack of transparency and complexity of the online advertising ecosystem. Digital ad fraud is estimated to have cost industry $19bn globally in 2018 and is projected to rise to $44bn by 2022, leading brands to question the effectiveness of digital advertising (Citi, 2020; see table).
- **Younger, more informed consumers are trying, even paying to avoid advertising** (Forrester, 2019; Hsu, 2019).
- **Concerns over the spread of misinformation, toxic content and tactics used to capture user attention** (ISD, 2020). Brands have grown increasingly uncomfortable about advertising appearing next to fake or offensive content. Interestingly, Procter & Gamble and Unilever were able to cut their online marketing budget in response to these concerns with seemingly little impact on sales or growth (Aral, 2021). Some have gone as far as to call for a digital advertising tax to encourage alternative business models (Romer, 2021).

Summary of attacks, description, attack goal, revenue model goal and primary component targets in online advertising system.

Attack	Description	Attack Goal	Revenue Model Goal			Primary Component Targets			
			CPC	CPM	CPA	Advertiser	Publisher	User	Ad Network
Hacking Campaign Account [12]	Unauthorized access to campaign accounts	Hacker aims at taking over control of advertiser's account	✗	✗	✗	✓	✗	✗	✗
Crowd Fraud [68]	Malicious behaviors by humans against competitors for specific targets	Increase fraudulent traffic	✓	✓	✓	✓	✓	✗	✗
Badvertising [69]	Utilizing malicious JavaScript code to publish invisible automatic advertisements in the user's browser	Increase the number of clicks	✓	✗	✗	✓	✗	✗	✗
Hit Shaving [89]	Dishonest advertisers claim that they received less traffic than in reality	Dishonest advertisers omit to pay commission on some of the received traffic to the publisher	✓	✗	✓	✗	✓	✗	✗
Hit Inflation [90]	Artificial inflation of the actual amount of traffic	Economic advantage from over-counting the numbers of transactions	✓	✓	✓	✓	✓	✗	✗
Inflight Modification of Ad Traffic [15]	Infecting the system to show altered search results along with modified advertisements to the users	Generate revenue fraudulently for ad networks and publishers	✓	✗	✗	✓	✓	✓	✓
Malvertising [15]	Perpetrators inject malicious code into legitimate online advertising networks to spread malware	Malicious code, eventually, attempts to redirect users to malicious websites	✗	✗	✗	✗	✗	✓	✗

Notes: CPC=Cost Per Click; CPM=Cost Per Impression Mile; CPA=Cost Per Action. Source: Pooranian et al. (2021).

8 Subscription-based business models: winners and losers

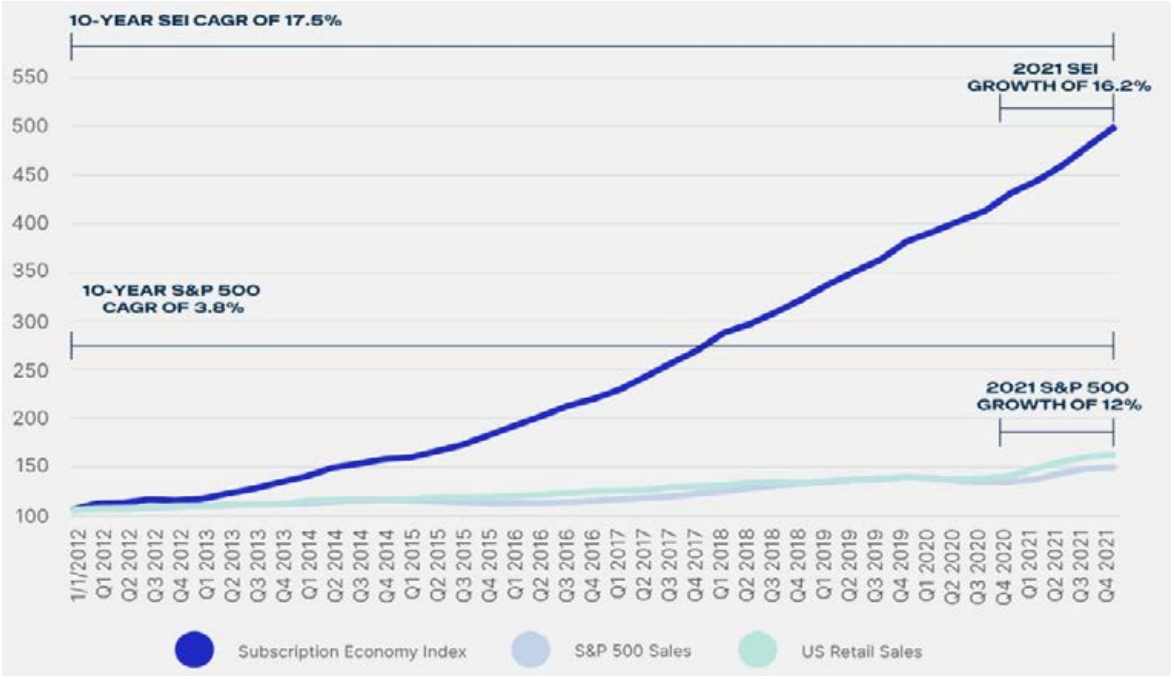
Trends shaping the future of the Creative Industries

Subscription-based streaming services with their emphasis on convenience, accessibility and personalisation represent a fundamental alternative to ad-based business models

WHAT IS THIS TREND?

Subscription businesses – in which consumers periodically pay a predetermined amount for a service or set of good – are today pervasive in many sectors – and for good reason. Zuora (2022) finds that over the past decade, subscription businesses as a whole have grown sales 4.6x faster than the S&P 500, which represents more traditional, product-based businesses. Lower per order economics associated with subscriptions are more than offset by higher engagement/frequency of use, higher retention and greater lifetime value with the potential to raise prices as more value is delivered to the consumer. The subscription model can be found across the economy, though churn rates are typically highest in the media sector. Cracks in the ad-based model have seen some of its most successful exponents look to subscriptions to remain competitive (Moore, 2023).

The Subscription Economy Index (SEI) level versus S&P 500 and US retail sales



Source: Zuora (2022).

The implications of subscription streaming services for creative businesses vary according to type of content and its position on value chain

MUSIC

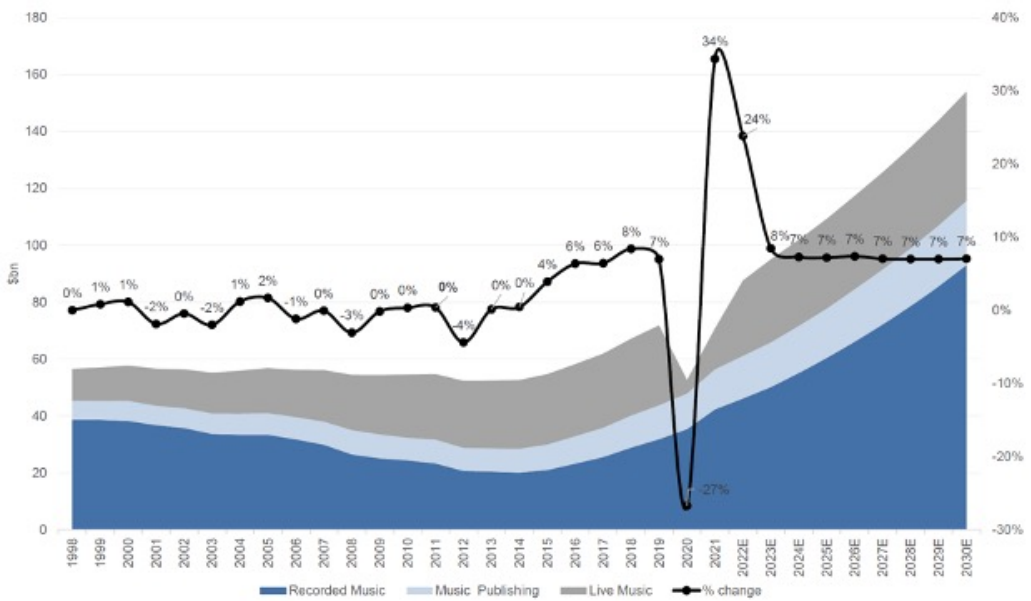
WHY DOES THIS TREND MATTER?

Streaming services have spearheaded a renaissance of the music industry the past five years. Platforms such as Spotify, Apple Music, Amazon Music, Tencent Music, Netease, Deezer and Yandex) has put a halt to a decade of collapsing revenues that had accompanied unbundling, piracy and the erosion of pricing power.

In 2021, over 520mn people globally subscribed to a music service accounting for ~60% of all global recorded music revenues. Streaming represented more than half of revenues in 48 markets worldwide, an increase of 12 markets from 2019. While the recording industry is still below its peak after accounting for inflation, this understates the extent of recovery of music industry as a whole – and the role of streaming in it. Notably, it does not capture monies that flow to publishing businesses or the demand for live music that had been suppressed by the pandemic.

Paid music streaming services have a long runway for growth. Penetration rates in developed markets range widely from 56% in the Nordics to 21% in Japan. There is an even greater growth opportunity in emerging markets, though they typically have a lower average revenue per user (ARPU). There is also scope for increased adoption and improved conversion from free to paid amongst older age groups, particularly in Japan, France, Germany and UK.

Global music market (recorded, publishing, live) breakdown (US$bn, LHS), % growth (RHS)



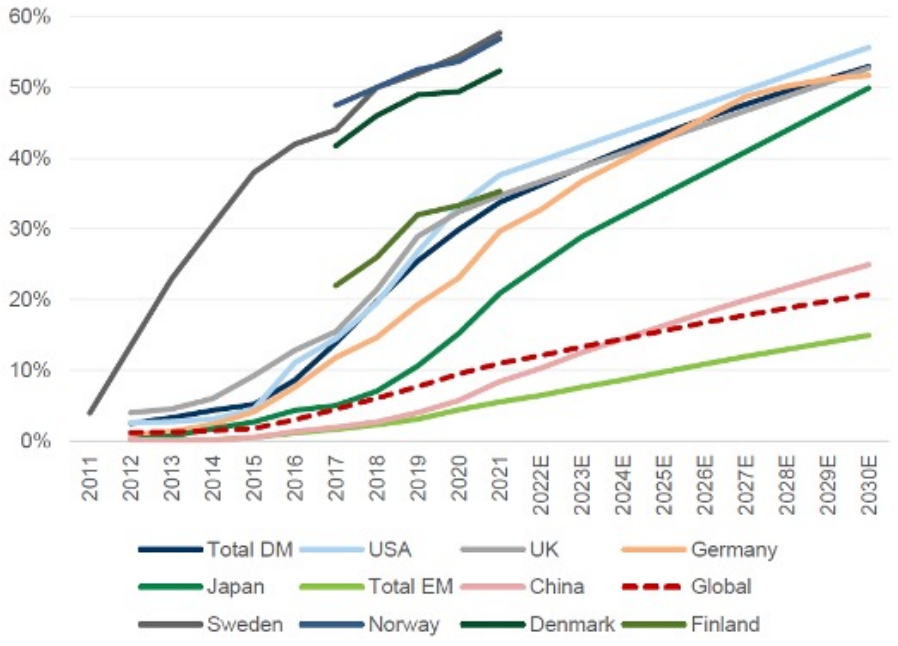
Source: IFPI, Goldman Sachs (2022).

WHY DOES THIS TREND MATTER? (CONTINUED)

Music subscriptions arguably represent better value for money than streaming video on demand (SVOD), providing protection against macroeconomic and saturation risks. Entire global content libraries can be accessed on just one platform; services are priced attractively compared with other entertainment subscriptions despite having lower penetration; and music streaming represents a greater % of time spent listening to music than SVOD makes up of total video consumption. This may explain the greater stickiness of music subscriptions: UMG (2022) observes that leading music streaming services suffer only low single-digit monthly churn relative to 45% semi-annual churn for SVOD services with over half due to programming variance. Interestingly recorded music spend as % of total entertainment spend and as % of GDP remains over 40% below the peak levels in 1998, suggesting that platforms have the ability to withstand the impact of higher inflation and raise subscription prices with less churn (see also chart on page 226).

Streaming changes the way music is consumed and valued. Page (2021) characterises the transition to streaming as the difference between charging upfront fees (selling a CD and knowing nothing about what happened next) and monetising consumption (earning downstream). Historically, consumption activity peaked in the first week and decayed thereafter – once users paid an upfront fee for a CD or vinyl record, they could play it over and over again free of charge. With streaming, consumption occurs downstream with the value of a track growing each time it is played. Investors understand this change: Blackstone, Apollo Global Management, KKR and Pimco have cumulatively funnelled billions of dollars into acquiring music rights to older songs (>$5bn in 2021). Like property and infrastructure, music rights are acquired in the promise of steady returns uncorrelated with other asset classes.

Streaming penetration by market (as % of smartphone users), 2011-30E



Source: IFPI, Goldman Sachs (2022).

The shift towards paid streaming platforms has mainly benefitted rights-holders such as record labels

⚠ WHAT ARE SOME OF THE RISKS, UNCERTAINTIES AND TOPICS OF DEBATE RELATED TO THIS TREND?

The long-term viability of business models is yet to be proven.

Streaming services are highly dependent on major labels for much of their music: competition and fragmentation among streaming services give major labels clout in rights negotiations ensuring they receive the largest cut of royalty payments (52%-58%). To lift the meagre margins in the core business of music streaming, services have turned to product and business model innovation. For example, Spotify has made big bets on podcasting: it bought Gimlet, the maker of podcasts like Reply All on internet culture, for $230mn and Anchor, a podcast-making app and platform. More recently, it has acquired the producer Parcast for €50mn and Ringer, a sports media and podcast group, for up to €180mn as well as signing exclusive content deals with major celebrities. The business has yet to turn a profit, notwithstanding podcast consumption accounting for more than 7% of all listening hours on the platform and aspirations that it will generate 40-50% gross margins over the next decade. Indeed, it has recently begun unwinding some of its podcasting investments, in an effort to control costs. The transition from pure music streamer to media producer has also been accompanied by controversies around the scope of editorial responsibilities.

Services are also experimenting with new forms of promotion: for example, under Spotify's Discovery Mode, labels can promote tracks in its algorithms in return for reduced royalty payments, though it has been criticised for its lack of transparency and treatment of artists with some likening it to the old 'payola' system (Nicolaou, 2021).

Concerns about the unintended consequences of streaming for the listening experience.

It is argued that a world of catalogues, tracks and playlists may move consumption away from newer artists and proper release projects, hindering the development of sustainable careers. Tracks may also be getting shorter, with snappier intros and earlier choruses to secure payment that is conditional on listeners staying tuned for a minimum period of time, penalising slow building genres like jazz and classical (Kopf, 2019). Errico (2015) speculates that incentives could encourage a return to the ABAB song form, marginalising structures such as bridges or more radically an inversion of the song where song development happens in the aggregate and is defined by the atmosphere that surrounds it, rather than its individual parts. An alternative perspective that this is just the latest iteration of the age-old practice of technology influencing content – much in the same way as song intros were a certain length so that DJs could give call-out letters, traffic and weather during the heyday of radio. Finally, despite facilitating new discoveries, there is a perception that listening experience has become more passive and utilitarian as a result of streaming. On this account, the listening experience has become less dedicated and focussed with users no longer having to work as hard for musical rewards (Pelly, 2022).

In 2022, the Canadian-American singer-songwriter and Rock and Roll Hall of Fame inductee Neil Young removed his music from Spotify in protest of alleged Covid-19 misinformation spread by its top podcaster Joe Rogan. The standoff led a large number of physicians and scientist to write an open letter calling Rogan a menace to public health. The platform ultimately sided with Rogan but added 'content advisories' to relevant episodes of the Joe Rogan Experience podcast. The episode highlights the tricky waters that the platforms will need to navigate as they increasingly resemble a media producer and deal with issues such as free speech and its contested boundaries.

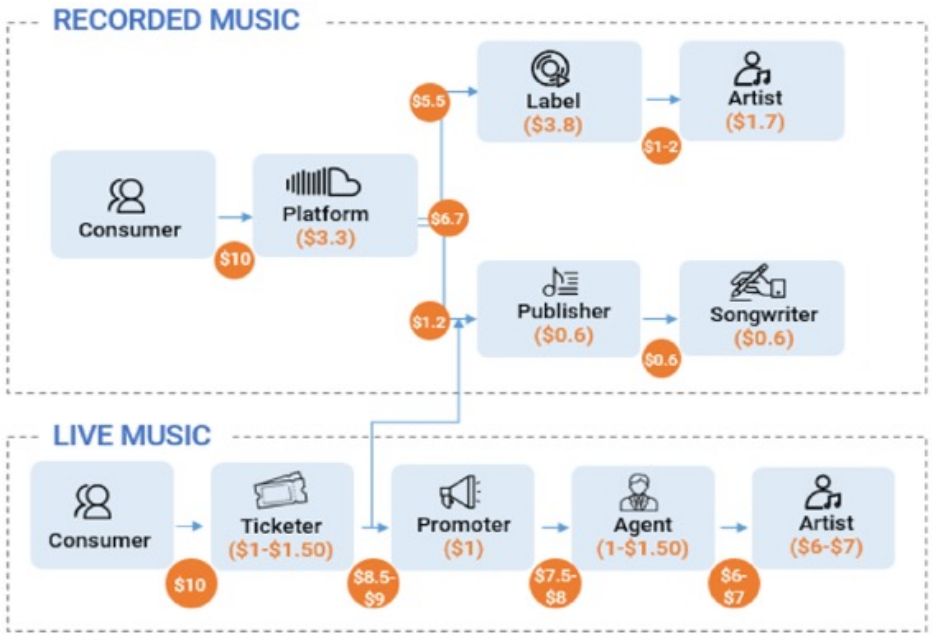
The shift towards paid streaming platforms has posed challenges for musicians

⚠ WHAT ARE SOME OF THE RISKS, UNCERTAINTIES AND TOPICS OF DEBATE RELATED TO THIS TREND? (CONTINUED)

Musicians have captured very little of the growth in streaming services. Struggles are attributed in part to the pro-rata payment system. According to this formula, revenues generated by users are pooled and distributed to artists on the basis of their share of total streams. Critics argue that the model unfairly advantages blockbuster artists and should be replaced by a user-centric payment system (UCPS) that would distribute each listener's subscription and ad-generated royalties solely between the artists they have listened to. In 2021, SoundCloud became the first platform to embrace user-centric payments when it launched its Fan-Powered Royalties system and in July 2022 Warner was the first major to sign up to it, though it is too early to say whether this trend will gather pace. Other ideas include bonus pools for artists that create value by generating many streams from new users and a superfan tier of subscriptions that would charge fans for extra perks or access to their favourite artists.

Any royalty distribution system creates losers as well as winners. A major study commissioned by the National Music Centre (CNM) in France found that switching to UCPS would reduce the royalties paid out to rights holders of the top 10 artists with benefits principally accruing to artists ranked between 101 and 1,000. Beyond the top 10,001 artists, however, the redistribution of income is limited. UCPS is also likely to favour genres like classical music, jazz, metal and blues at the expense of genres with large audiences like rap and hip-hop. Similarly, there is evidence that the system favours catalogue music and older age groups' music listening habits, possibly inhibiting innovation (Hesmondhalgh et al., 2021). More generally, distribution systems of all stripes are vulnerable to manipulation. This includes fake stream farms, dishonest actors tagging famous artists as collaborators and the proliferation of low-quality functional music designed to artificially increase streaming numbers. These concerns have taken on greater significance with rapid developments in generative AI.

Illustrative recorded and live music value chain



Source: IFPI, Goldman Sachs (2022).

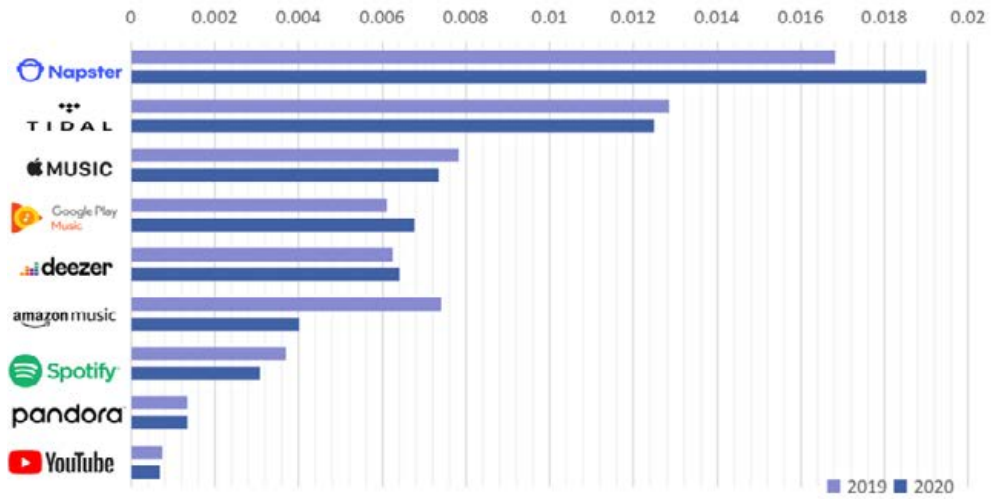
⚠ WHAT ARE SOME OF THE RISKS, UNCERTAINTIES AND TOPICS OF DEBATE RELATED TO THIS TREND? (CONTINUED)

Some musicians are going it alone and turning to DIY services. Services like Distrokid and EmuBands allow artists to retain all their rights and revenues in return for a fixed fee. Artists are also discovering new ways to offset the loss in promotion and advertising support and take advantage of the dynamics and microeconomics of streaming – for example the importance of releasing regular content to make fans feel part of the artistic journey and maintain top of mind awareness to encourage engagement with back catalogues. While this trend is worth monitoring, particularly for the longer tail of artists who would not otherwise be signed by labels, examples of successful breakthroughs are still rare. It is notable that the combined market share of the three major labels has remained broadly stable since 2016 and they account for 98% of the Billboard 100 or 97% of Spotify Top 50 streams.

Current reform proposals aim to deliver a greater share of streaming revenue to artists, musicians and songwriters, though they are highly controversial. In the UK, the Copyright (Rights and Remuneration of Musicians) Bill would have created a statutory right to equitable remuneration as applies to broadcasting, though it failed to progress legislatively. Versions of equitable remuneration for streaming exist in other countries (e.g. Spain); however they are in a minority. Others support alternative models to support equity, risk and innovation and emerging artists (IMPALA, 2021). An open question is whether fair solutions may emerge even without government intervention due to intense competition among labels for talent and the DIY options available for artists to release music. There is indeed evidence that parts of the streaming market have improved for some creators in recent years. For example, royalty rates in major deals with artists have increased gradually from 19.7% in 2012 to 23.3% in 2021. This has been accompanied by shorter contract terms and fewer contracts where the label take ownership of the copyright in perpetuity (CMA, 2022).

To support incomes, musicians have become more reliant on touring. Almost all live events were cancelled during the Covid-19 pandemic, however the segment has rebounded much quicker than anticipated. More generally live performances have tended to exhibit greater resilience than other discretionary activities during economic downturns.

Average per-stream payout rate, by platform, $ (2019-2020)



Notes: Calculating a per-stream rate requires making assumptions, since there are numerous factors that affect overall revenue. Importantly, not all streams are created equal, reflecting, among other things, differences in pricing tiers across different geographical markets. In this respect, averages can obscure as much as they reveal (Soundcharts, 2019). It is also important to note that figures only reflect the total rate if the artists owned all of the rights per-stream which is not the case where artists are signed to labels. These caveats notwithstanding, it is estimated that it would take anything from 970 to 7270 streams to earn one hour's UK National Living Wage in 2020, depending on the platform. Source: Castle and Feijoo (2021).

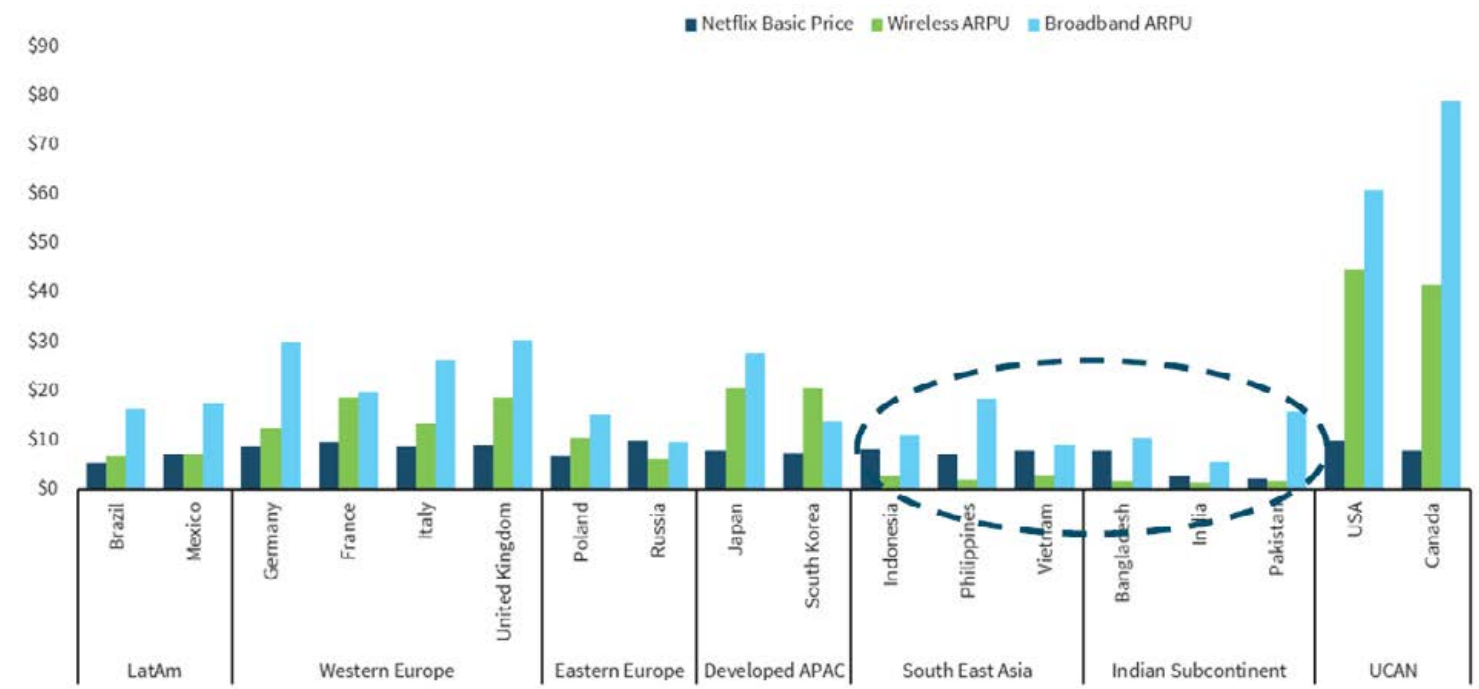
Rapid adoption of over-the top (OTT), notably subscription video on demand (SVOD) in developed markets

FILM

? WHY DOES THIS TREND MATTER?

In 2021, OTT video revenues stood at $79.1bn. By 2023, they will account for 35.4% of global TV subscription revenue (including public licence fees), up from 18.6% in 2019. However the pace of OTT revenue growth is expected to slow 7.6% CAGR through 2026, when revenue will be $114.1bn, reflecting the challenge of adding more subscribers (PWC, 2022). Netflix, Disney, Amazon and Hulu are global market leaders in the OTT space while iQiyi, Viu, Alt Balaji, Hotstar, Iflix, Claro Video and Starzplay have emerged as significant regional players. SVOD is much more muted in lower income countries where consumers are less used to paying for TV and subscriptions are often more expensive than broadband access (see chart on the right). Instead there is a preference for inexpensive mobile-supported subscriptions, ad-supported (AVOD) and subscriptions via hardware bundling (Barclays, 2022).

The cost of Netflix vs. cost of wireless and broadband services, global, 2022



Source: Barclays (2022).

SVOD has expanded and disrupted markets for funding, talent and consumer attention

? WHY DOES THIS TREND MATTER? (CONTINUED)

SVOD, supported by the entry of powerful tech companies, has invested heavily in sophisticated, high-quality television using techniques once the preserve of cinema. The accompanying investment has benefited high-end local talent (writers, creatives, format originators, VFX – Netflix has production facilities in 50 countries), commercial property (film and TV studios) and consumers (for every dollar consumers spend on a monthly Netflix account, they receive almost $1bn of content). The UK has been a particular beneficiary of these trends. Consider *Andor*, the critically acclaimed *Star Wars* spin-off series from Disney+ that was filmed at Pinewood Studios in London and locations in Lancashire, Dorset, Scotland and Essex and features an overwhelmingly British cast or HBO's Emmy-winning *Succession* that is produced with the budget and trappings of a high-end US prestige drama but retains the sensibility, pathos and irreverence of a dark British sitcom reflecting the background of its creator, Jesse Armstrong and many of its writers. On the other hand, smaller independent production companies have found themselves squeezed for talent by deeper pocketed rivals that can afford higher wages (Wells Fargo, 2019; Gray, 2021). Others point out that the streaming era has coincided with a shift away from performance-based pay or 'back-end', meaning creators are less likely to share in the upside of a show's success than in the past.

Streaming revenues vs. Content Spend

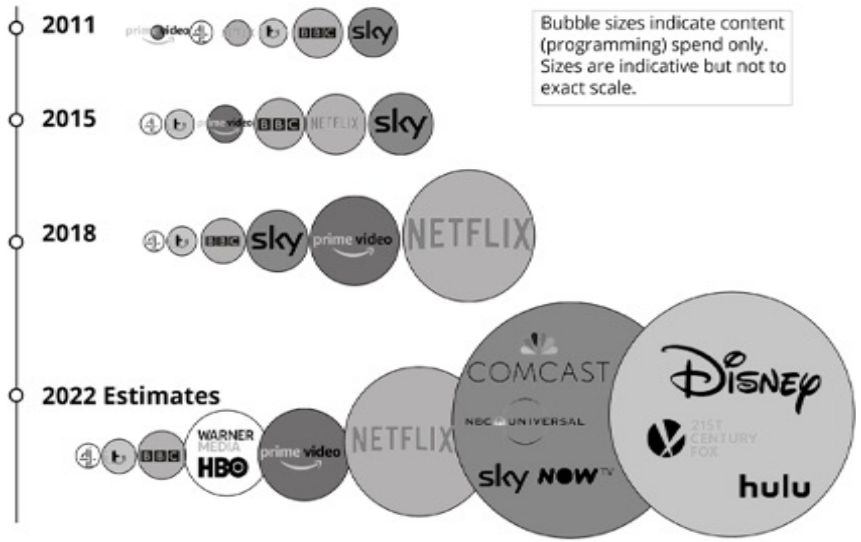
Source: Barclays (2023).

WHY DOES THIS TREND MATTER? (CONTINUED)

Significant pressure on traditional broadcasters due to higher production costs and viewers expectations. The average cost of producing an episode of a scripted drama was $6mn in 2019, twice the rate of 3-4 years before. Amazon's adaptation of *The Lord of the Rings* had an estimated budget of $465mn for the first season alone – enough to make Hollywood blockbusters many times over. BBC (2021) estimates that 30% of its expenditure could be impacted by 'superinflation' with costs rising faster than the rate of inflation (BBC, 2021). In response, traditional broadcasters are turning to co-productions/multinational partnerships to fund more expensive content while minimising risk. Some are also adopting an 'arms dealer' strategy: rather than competing directly in the streaming wars and having their own service, traditional broadcasters are selling film and TV rights to the highest bidders – think BBC and series like *Bluey*, *I May Destroy You* and *Mood*. Splitting content creation from distribution function also can provide more room for manoeuvre: in vertically-integrated structures, when producers greenlight content, the distribution choice is largely set in stone – in the process, making it harder to scale both content and distribution at the same time and optimise economics through the best channel possible.

For now, streaming advertising remains a small fraction of traditional broadcast advertising, mitigating some of these pressures. Interestingly, broadcasting CPMs – the price advertisers must pay for their ad to be seen by a thousand viewers – have seen robust growth in major markets. The largest advertisers on TV are quite different from those who advertise on the internet or on streaming services, suggesting limited substitution risk at present. This may reflect that in countries such as the US, the most watched non-sports shows remain broadcast shows, despite rating lower than cable networks and OTT on perceived quality. It may also reflect the relative immaturity of AVOD services that skew more heavily towards old library/film content vs SVOD services and have greater content overlap and lower content quality ratings. Again this may change as the largest and most popular streaming services like Netflix and Disney rethink their historic aversion to advertising, offering ad buyers an increasingly meaningful and direct alternative to broadcast TV.

Content spend in UK, 2011-2022e



Source: House of Lords (2019).

Streaming services face a number of headwinds

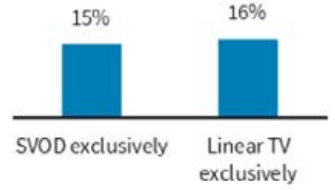
⚠ WHAT ARE SOME OF THE RISKS, UNCERTAINTIES AND TOPICS OF DEBATE RELATED TO THIS TREND?

The streaming space has become more crowded in recent years, resulting in **(I)** increasing market fragmentation and **(II)** huge investment outlays as competitors fear being left out of the streaming land rush.

I. Fragmentation of content libraries is undermining streaming's promise of choice and convenience. A key attraction of streaming services is that subscribers typically pay one fee for one version, removing the need for users to keep up with what it is being shown where and which package(s) best suit their needs before deciding to sign up. Moreover, despite there being thousands of shows in the aggregate, only a small proportion of all available titles on streaming or linear TV (~15%) are exclusive to a given platform and >60% of content on most services is more than 6 years old (Netflix and Hulu being exceptions), meaning that users must take out additional subscriptions for just small number of new shows. These considerations are reinforced by the fact that only a small subset of services has a favourable quality distribution, requiring users to pay for dross, even if they appear more forgiving with respect to certain types of streamed content (e.g. films vs. TV series).

Signs of consumer frustration with the growing number of subscriptions that are required. The Wall Street Journal reports that 19% of subscribers to premium services cancelled three or more subscriptions in the two years up to 2022 versus 6% in the two-year period 2018-2020 (Krouse, 2022). Increased fragmentation in the streaming landscape coupled with high costs represents a perfect storm for piracy. One UK-based survey found 37% of respondents would consider using illegal sources to access content in response to further fragmentation in contrast to 18% of respondents who admitted to currently accessing content via illegal streams or file sharing (Broadband Genie, 2019). Password sharing between households has also grown in popularity – Netflix estimates that 100mn households are using its service without paying for it via password-sharing.

Proportion of all available titles on streaming or linear TV that are exclusive to a given platform

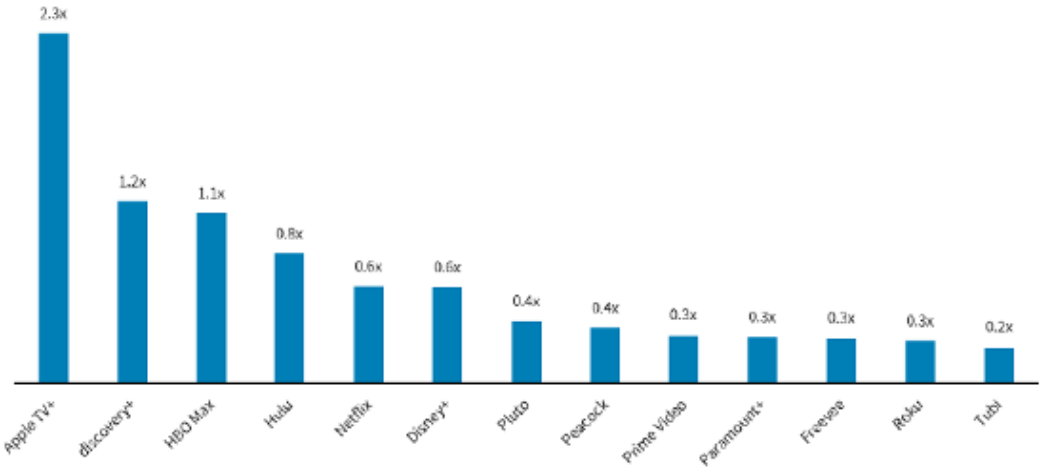


The chart shows that only a small proportion of all available titles are exclusive to a given platform. Source: Barclays (2022).

⚠ WHAT ARE SOME OF THE RISKS, UNCERTAINTIES AND TOPICS OF DEBATE RELATED TO THIS TREND? (CONTINUED)

The often short shelf life of content poses further challenges for streaming economics. Some popular programming can be binged in a single night or weekend – and with little friction between viewing and cancelling, users are shuffling in and out of services in line with the release schedules of favourite shows. A survey by Deloitte (2021) finds that among those who had cut a streaming service, 62% had signed up to watch a specific show and then cancelled once they were done. Moreover 43% cancelled the same day they decided they no longer wanted the service. This evidence is only suggestive but if switching becomes the norm, services may find it very difficult to convince users back into traditional subscriptions. In response, some SVOD players have returned to weekly episode releases. This is with the aim of keeping consumers locked into subscriptions for longer and generating more buzz around shows – much like pre-streaming era TV sought to deal in communal experiences. It is an open question whether this strategy will succeed. What made Netflix's original binge model so successful was the understanding that viewers rarely get hooked on a show by watching just a pilot and that the binge-watching experience tends to generate more euphoric highs than traditional programming. On the other hand, some genres e.g. comedy appear better suited to weekly releases than others e.g. action and adventure and horror, suggesting that the optimal solution might be a combination of both release models (Parrot, 2023).

Ratio of titles rated 7-10 versus 1-6



The chart shows that only small subset of services such as Apple TV and HBO Max has a favorable quality distribution. Note these streamers have relatively few titles on their platforms such that in absolute terms the number of high quality titles is actually lower than that on larger platforms . Source: Barclays (2022).

Peak TV? Streaming wars raise uncertainties about how the sector will evolve and which business models will succeed

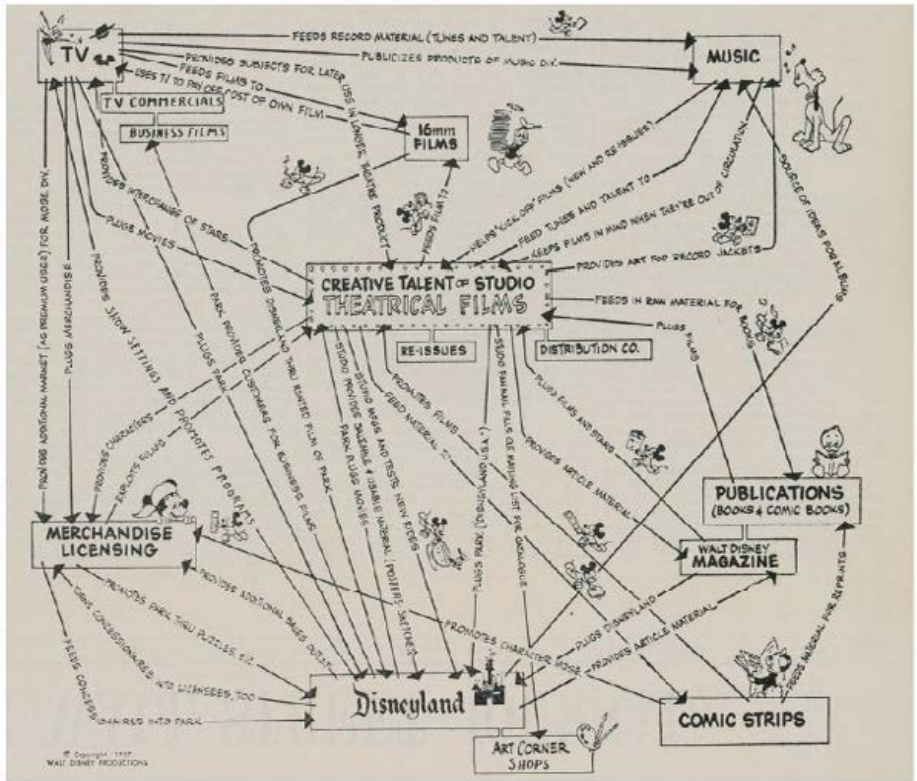
⚠ WHAT ARE SOME OF THE RISKS, UNCERTAINTIES AND TOPICS OF DEBATE RELATED TO THIS TREND? (CONTINUED)

"This isn't a gold rush, it's an arms race. We don't know if there is any pot of gold. Once the music stops, there will be carnage. It might take three to five years, but there has to come a point when we come to our senses."

media executive

II. Decade-long spending boom on original TV content is rubbing against competition, macro and market saturation. In particular, streaming services are discovering that content spend and having hits do not necessarily equate to subscriber growth. In part, this is due to the glut in originals from streaming services that has increased content discovery friction and lowered content yields, as measured by the content spend needed to acquire a monthly subscriber. These pressures are particularly felt by general entertainment content relative to more franchise-based content (Barclays, 2022). For example, Netflix's approach to content creation supports success maximisation and project diversity and consequently content with broader demographic appeal and a larger total addressable market but it is accompanied by a larger number of flops, lower individual engagement per show and higher production costs.

New streaming monetisation and aggregation models are likely to emerge



1957 drawing of Walt Disney's virtuous cycle and flywheel effect across its different entertainment assets – one that holds lessons for companies like Netflix. Source: Design Taxi.

⚠ WHAT ARE SOME OF THE RISKS, UNCERTAINTIES AND TOPICS OF DEBATE RELATED TO THIS TREND? (CONTINUED)

Spending growth is expected to slow sharply. Ampere (2023) predicts that overall spending growth on original content will fall from 6% in 2022 to just 2% in 2023 and potentially beyond.

If this scenario materialises, it would represent the slowest rate of expansion in over a decade. In a sign of changing times, companies are cancelling shows that they already agreed to make in a bid to minimise expected losses. There has also been a noticeable shift in content commissioning towards cheaper unscripted formats – documentaries, true crime, game shows and reality TV (Ampere, 2023). In 2019, Netflix commissions were 26% unscripted, increasing to 32% in 2022 while Disney+ commissions stood around 27% unscripted at launch, climbing to 41% in 2022. At the same time, there appear limits to how far fiscal austerity will go given the need to nurture a brand identity based on content quality and genre differentiation. Thus, Netflix has restructured its film group to make fewer movies each year and centralise decision-making but it has also continued to expand their local language offering around the globe reflecting cost considerations but also the fact that subscriber growth in international markets has held much better than that in more saturated major markets.

Some companies are better positioned to weather any downturn than others. Amazon, Apple TV and to a lesser extent Disney+ can leverage other lines of business to subsidise their streaming efforts and remain competitive in the race for subscribers (Ball, 2019). For Amazon, streaming and actions such as the acquisition of MGM Studio, the storied producer of the *James Bond* and *Rocky* franchise is about greasing the wider Prime subscription and shopping flywheel. Its emphasis on arthouse films/indie content is partly motivated by the recognition that affluent, educated subscribers who watch this content also happen to be very good retail customers.

Whatever the specifics, companies will need to ensure spending is more impactful. Barclays (2022) argues that this will require a more sophisticated approach to curation and managing content feedback loops. For example, it believes sports will be an important component of most streaming services over time, including Netflix insofar as it guarantees a base level of guaranteed engagement and serves as a feeder to drive awareness of other content on the platform. It is perhaps no coincidence that ratings of shows, regardless of genre, tend to be higher after televised football games. There is also likely to be more emphasis on how streaming services can maximise the money extracts from existing audiences while expanding their total addressable market from alternative sources: ad-supported options, upselling with offers featuring exclusive services (e.g. episodic vs. full season), merchandising, video gaming, a rediscovery of theatrical releases and even live entertainment. No single path is certain: for example, introducing an ad-supported tier requires reaching enough people to attract quality advertisers while ensuring it does not cannibalise too many full-price customers.

We are already seeing the upper limits for subscriptions in some creative subsectors: the case of news and journalism

NEWS

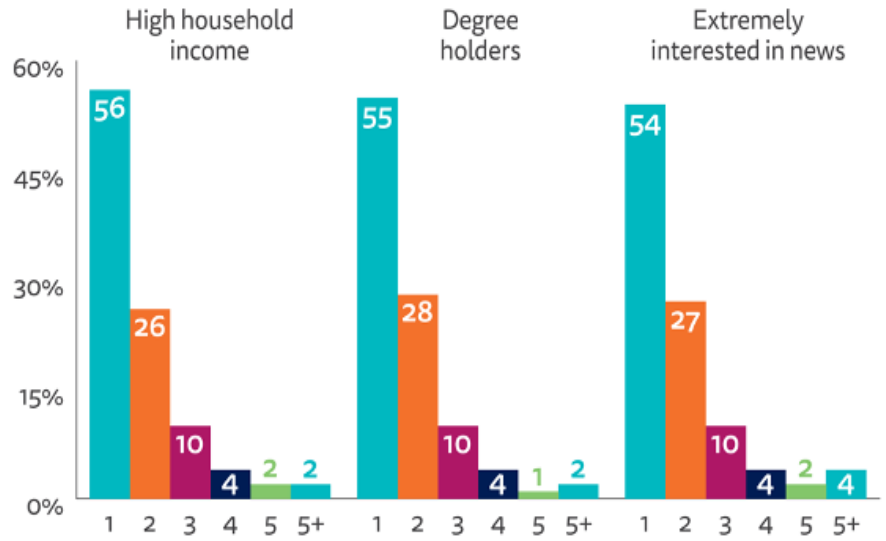
WHY DOES THIS TREND MATTER?

More and more newspapers and magazines are pivoting towards the subscription revenue model. In recent years, memberships and subscriptions have outpaced advertising revenues for the first time for some titles (Reuters Institute, 2022). However, the industry's experience with subscriptions has highlighted some of the limitations in the business model not only as it relates to media markets but also to the creative industries as a whole.

WHAT ARE SOME OF THE RISKS, UNCERTAINTIES AND TOPICS OF DEBATE RELATED TO THIS TREND?

Even among the most 'active' demographic segments, the majority of readers only pay money to one news organisation. Reuters Institute (2022) observes that between a third and half of all news subscriptions go to just a few big national brands with some users then adding a local or specialist publication – a so-called 'barbelling' approach. In a similar spirit, Press Gazette (2021) notes that only twenty-eight English language news sites in the world have managed to get over 100,000 subscribers with twenty-one of them based in the US.

Number of news organisations that people regularly pay money to, by income, education and interest in news– selected markets



Source: Reuters Institute (2019).

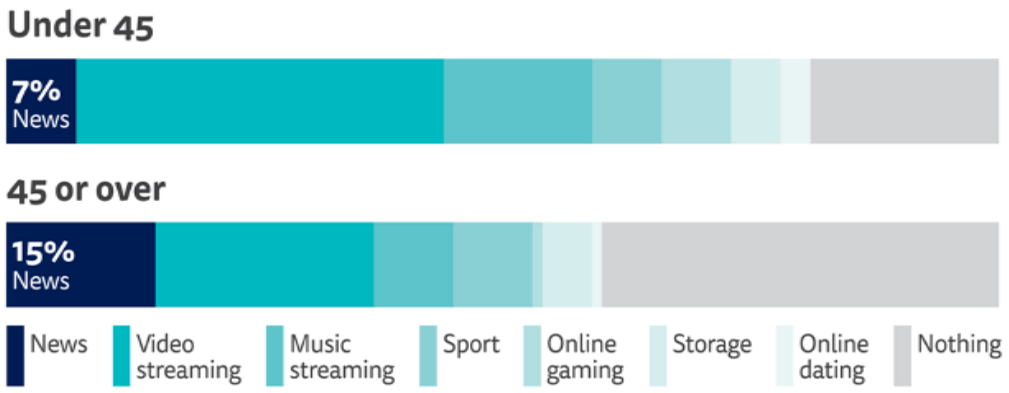
⚠ WHAT ARE SOME OF THE RISKS, UNCERTAINTIES AND TOPICS OF DEBATE RELATED TO THIS TREND? (CONTINUED)

Subscription news models must overcome a number of barriers:

- News ranks low relative to online subscription services, particularly among younger, low-income consumers.
- News is accessed through search engines (e.g. South Korea, Japan, Taiwan) and social media (e.g. Chile, Brazil, Malaysia), meaning that publishers may not gain the recognition or credit needed to build lasting relationships with readers while giving platforms control over the curation and discovery of news.
- High costs of transitioning to digital: The New York Times ploughs 7% of its total turnover into product development as it hires more staff to advance digital subscription initiatives and new content formats.
- Public interest concerns: putting high-quality news behind paywalls while misinformation and conspiracies flow freely on social media may exacerbate inequalities in media literacy (Benson, 2019).

Pressures on smaller players could set the stage for bundling of services and other forms of business model innovation. To date, bundling has been a very inconsistent and difficult journey for many news outlets who fear cannibalisation and losing control of user data. Others such as Axate are exploring micropayments or causal payments for news, allowing readers to access articles beyond a paywall for a penny. However, once seen as the future of news and a way of getting different groups into the pipeline, there has yet to be a resounding micropayment success story in the media industry. Others are looking to partner with streaming services to create news-adjacent content. It is worth noting that documentaries were the fastest-growing genre on streaming platforms in 2020 and are becoming an increasingly valuable tool in retaining subscribers (Parrott, 2021). More radical experiments include journalism-as-a-service licensing and delivery models that allow outside parties to use a newsroom's functional resources, assets and data for a price (e.g. FT Strategies), though they remain small in scale (Lavandera, 2017). Complementing these initiatives, there have been efforts to make subscriptions more inclusive. Thus, South Africa's Daily Maverick offers a 'pay what you can afford' model; Portugal's Público gifts free digital subscriptions to unemployed people; while Sweden's Dagens Nyheter has relaxed its paywall for younger readers – for example, making all articles free but putting the most visited articles ones behind a wall several hours after they are published (Reuters Institute, 2022).

Proportion of people that would pick each if they could only have one online media subscription for the next year – selected markets



Source: Reuters Institute (2019).

9 Gaming as the commanding heights of the creative economy?

Trends shaping the future of the Creative Industries

We are all gamers now

WHAT IS THIS TREND?

Once a niche corner of the creative industries, video games have grown into a juggernaut. Unlike other creative subsectors, the traditional video games ecosystem has experienced less disruption as incumbents have skilfully used digital technologies to build wide moats – in part, by selling directly to consumers and disintermediating brick-and-mortar retailers and in part, by integrating social and immersive features through online multiplayer gaming and cross-platform play.

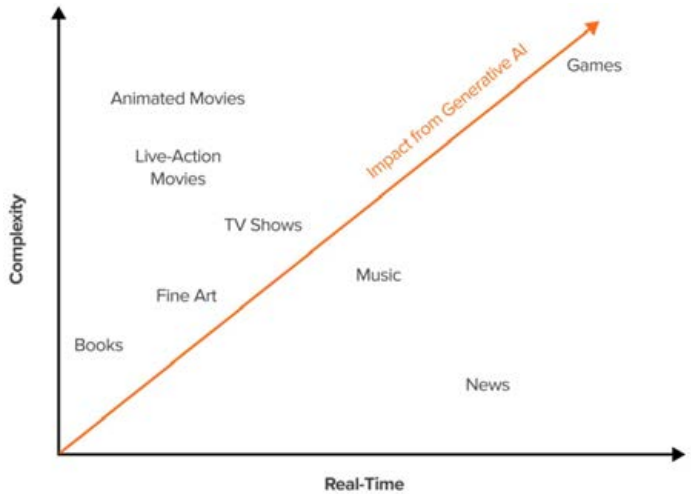
New monetisation models – upgrades, expansion packs and season passes – have allowed publishers to create 'live' long-term games. This source of recurring revenues is prized by publishers, helping to smooth out the volatility inherent in the 'hit-driven' nature of the games industry. The enduring popularity of *Grand Theft Auto V* (GTA V), initially released in 2013 and today the most successful media product of all time, exemplifies this trend: regular updates to the city of Los Santos offer players new missions, vehicles, radio stations and tools for them to create their own virtual culture and history (Faber, 2020). The result is that in 2020 or seven years after its initial release, *GTA V* still generated >$910mn in revenue for its parent company. Today nearly 60% of revenue from video games comes from downloadable content (DLC) and microtransactions – not the actual games.

Free-to-play gaming (FTP) is the most radical application of in-game monetisation. The FTP model has been critical to the success of titles like *Call of Duty: Warzone 2*, *Apex Legends*, *Final Fantasy XIV* and *Candy Crush*. FTP underpins mobile gaming (~ 90% of mobile games are FTP) and mobile gaming now accounts for half of the industry's revenues.

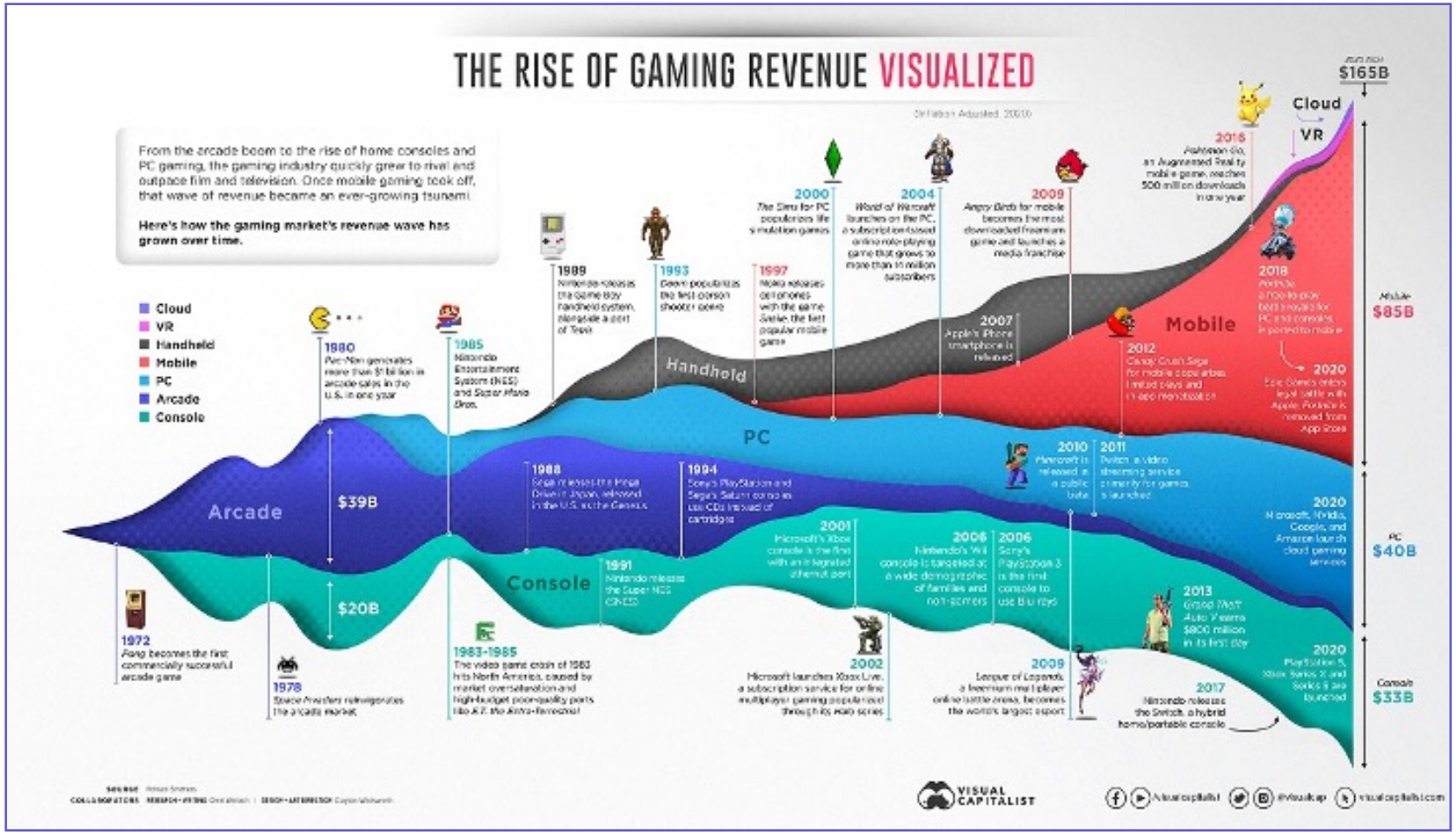
Advances in generative AI are poised to unlock further value in the sector. Procedural generation and the creation of original in-game assets could shorten development and testing times, driving significant cost savings without compromising quality. One estimate suggests a reduction of effort in the order of 120-to-1 for an activity like concept art (Andreessen Horowitz, 2022). Even if this prediction is on the high side, it would still be a boon for indie developers with limited resources. For larger studios, it could mean an additional AAA title each year or avoiding a delayed release. These tools also have the capacity to enhance the intelligence of non-playable characters (NPCs) so that they appear more 'lifelike' as they interact with gamers, developing their own personality traits instead of following scripted cues in response to a gamer's play style and performance.

Heightened realism through these advances will likely result in deeper levels of engagement and improved replayability of games.

Predicted impact from generative AI on different forms of entertainment



Notes: In this framework, opportunities for disruption are a function of (i) complexity and the number of asset types required to produce a creative work and (ii) interactivity and the consumer demand for real-time experiences. On both measures, video games score as the form of entertainment 'most impacted' by generative AI. Source: Andreessen Horowitz (2022).


THE RISE OF GAMING REVENUE VISUALIZED
From the arcade boom to the rise of home consoles and PC gaming, the gaming industry quickly grew to rival and outpace film and television. Once mobile gaming took off, that wave of revenue became an ever-growing tsunami.
Here's how the gaming market's revenue wave has grown over time.
Cloud
VR
Handheld
Mobile
PC
Arcade
Console
$39B
$20B
$165B
$85B
$40B
$33B
1972
1978
1980
1983-1985
1985
1988
1989
1991
1993
1994
1997
2000
2001
2002
2004
2006
2007
2009
2010
2011
2012
2013
2016
2017
2018
2020
VISUAL CAPITALIST

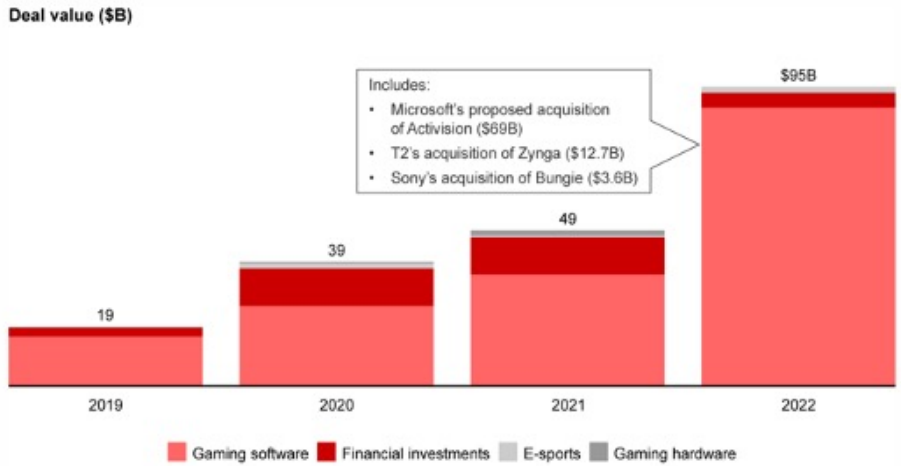
WHY DOES THIS TREND MATTER?

On some estimates, the video game business is now larger than both movie and music industries combined. Games have arguably reached a watershed moment in our culture. During the pandemic Covid-19 lockdowns, playing video games had a positive effect on levels of well-being, allowing individuals to escape the four walls of their homes and find solace in expansive fantasy worlds and connect with friends and family that they could not see in person (Barr and Copeland-Stewart, 2021). Today, games are played by billions of people irrespective of gender, age or demographic – consider how 20 years ago, females made up only 18% of the PlayStation gaming audience; today the figure is 41%. Games can be found in museums and school curricula, read about in highbrow publications and are even a tool for political engagement. They span the bleeding edge of immersive technology to simpler formats that are integrated into our daily lives. Hypercasual games, characterised by ultrasimple gameplay, basic graphics and repetitive, low-stakes challenges, have become an increasingly popular way of navigating our digital, material and social worlds (Hjorth and Richardson, 2020; Deighton, 2022).

Despite some of the glow coming off in the post-Covid-19 era, the long-term outlook for the industry is bright. Part of the core appeal of video gaming is that it taps into deeper sources of meaning: it engages a playful sensibility which is seen as fundamental to being human ('Homo Ludens') with the philosopher Bernard Suits even arguing that playing games belongs at the heart of any vision of Utopia (Huizinga, 1938; Suits, 1978; Isbister, 2016).

One reflection and result of gaming's ascent has been the recent rush of money into merger and acquisitions. This includes not only gaming company-to-gaming company acquisitions but also the entry of big tech and media companies. The most striking example is Microsoft's proposed acquisition of Activision Blizzard for $68.7bn that would make it Microsoft's largest-ever deal – in far excess of the $28.1bn it paid for LinkedIn in 2016 – and also the biggest all-cash acquisition in business history – never mind the largest in the history of video games. Another interesting example is Embracer, the Swedish developer that has quietly bought up many smaller studios and less known IP, employing a decentralised operating model. On the other hand, these trends could make growth via M&A harder for mid-sized publishers and studios while shrinking the middle ground between large publishers and micro indie studios (Gordon, 2022).

Global video game M&A activity, 2019-2022e



Source: Bain (2022).

WHY DOES THIS TREND MATTER? (CONTINUED)

The cultural and economic reach of video games

a.

b.

c.

d.

e.

f.

g.

h.

i.

a. A 2022 exhibition at the Imperial War Museum that was dedicated to exploring what video games can tell people about conflict.

b. Screenshot of the cybersecurity game, developed by the Financial Times, in which the player is tasked with negotiating their company's way out of a ransomware attack.

c. Photo of Silver Snipers, a group of older gamers that plays the popular shooter Counter-Strike: Global Offensive and is well-known in online circles. The average age of members is 70.4 with the oldest member over 80.

d. The entrance to Super Nintendo World in California. The theme park features rides that get more sophisticated the more users play them, each time gaining different experiences and more rewards.

e. Gamification has been used in the retail sector to increase customer engagement and brand recognition. As part of the 2020 Uefa Champions League campaign, Pepsi added gamified elements with virtual avatars of football stars, allowing users to participate in a virtual kick-up.

f. *Unreal Engine*, owned by Epic Games, owner of *Fortnite*, has been the behind-the-scenes engine for special effects on some of the biggest television shows and films such as *Game of Thrones*, *Rogue One: A Star Wars Story*, and *The Mandalorian*. It is estimated that *The Mandalorian* cost one quarter per minute as the standard *Star Wars* film as well as being greeted with more critical and public acclaim. While not perfect, nearly all of the first season, featuring multiple planets, was shot on a single virtual stage in Manhattan Beach, California.

g. In October 2020, US members of Congress Alexandria Ocasio-Cortez and Ilhan Omar went on livestreaming platform Twitch to play the murder mystery game *Among Us* to raise voter awareness ahead of the presidential election. The stream attracted nearly 450,000 real-time viewers and 5.2mn viewers in aggregate, making it one of the most watched streams ever.

h. HBO's adaptation of *Last of US* shows how video games increasingly provide source material for other formats, including highbrow TV programming. The post-apocalyptic thriller has been lauded as a masterpiece, praised for its faithfulness to the game while building on the lore in deft but dramatic ways that helps it stand on its own.

i. For younger generations, sports entertainment today comes from eSports: nearly 74mn people watched the League of Legends World Championship in 2021 – a figure that towered over both the MLB and NBA Finals audience viewership.

Whether video games incumbents will continue to prosper is an open question…

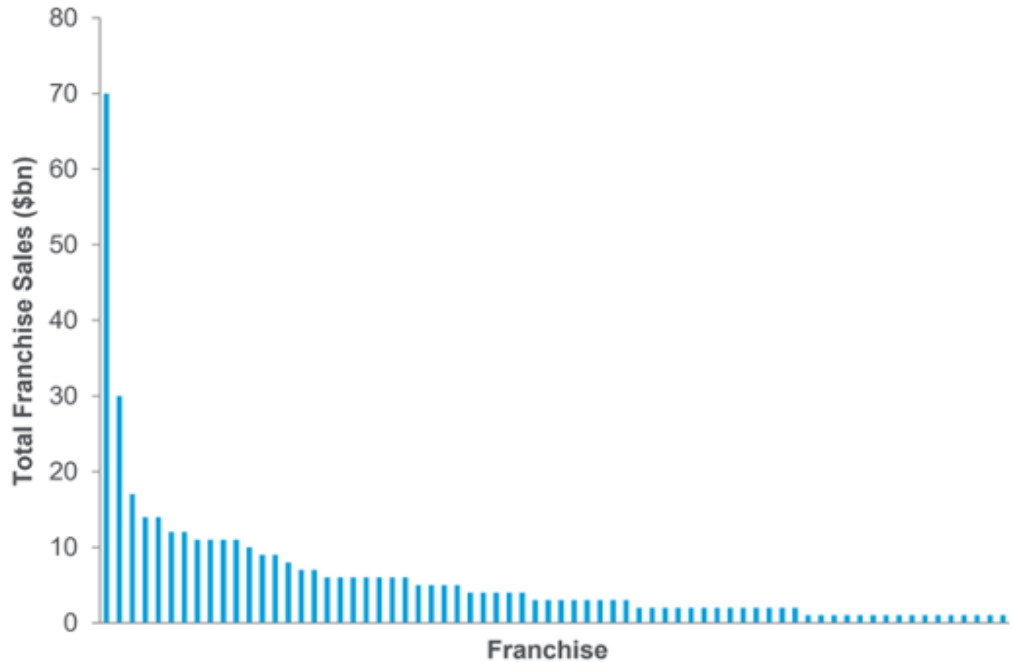
⚠ WHAT ARE SOME OF THE RISKS, UNCERTAINTIES AND TOPICS OF DEBATE RELATED TO THIS TREND?

Controversies around monetisation strategies like FTP:

- Exploitative aspects of pure in-game monetisation ('loot boxes' or 'gacha') that rarely set upper spending limits and often leverage random reward mechanisms akin to gambling (Zendle and Bowden-Jones, 2019).
- Ability of users to buy their way forward in games ('pay to win') violating community norms that games should be balanced contests of skill (e.g. the *Battlefront 2* controversy).
- Concerns that breaking games down into a series of profitable chunks undermine creativity and storytelling.
- Empirical evidence from PC market that premium video games are, on average, played more and generate higher revenues per user than games commercialised through freemium business models that are more reliant on scale and network effects (Rietveld, 2018).

Will video gaming follow the footsteps of other forms of media that have shifted from paid bundles to individual subscription services? Cloud-based subscription services are particularly intriguing: they transfer computational heavy-lifting to data centres so that users can play games on nearly any screen with an internet connection regardless of hardware limitations and have particular appeal in markets such as India that do not have a console tradition or install base.

Number of Franchise Games Generating > $1 Billion, 1981-2018



Over past 40 years, only 70 global video game franchise games have generated over $1 billion in global sales. Interestingly some of the highest grossing franchises like Pokémon, Mario Brothers, Grand Theft Auto and FIFA have been around for 20 years or more. Within premium market, top ten franchises account for roughly half of the market's revenues (By comparison, the top ten blockbuster movies accounted for only 33% of US box office in 2018). Source: Citi (2019).

⚠ WHAT ARE SOME OF THE RISKS, UNCERTAINTIES AND TOPICS OF DEBATE RELATED TO THIS TREND? (CONTINUED)

Cloud gaming represents a threat to incumbents insofar as they cannot easily replicate the cloud infrastructure of large tech companies. It is not a coincidence that Apple, Amazon, Google, Microsoft, Netflix and Tencent have all announced or launched cloud gaming services. But despite aggressive marketing and initial signs of subscriber satisfaction, subscription services have so far failed to excite the wider gamer community. This is arguably due to gaming's unique consumption model and economics:

- Individual games generate far more engagement than other entertainment formats and so do not lend themselves to large content libraries, implicit in the value proposition of à la carte subscriptions. Indeed, there is an ongoing trend among many gamers to purchase fewer games as time spent per game has increased with the migration to multiplayer and persistent world games like *Call of Duty* and *Grand Theft Auto* Online.
- To succeed in a premium market dominated by blockbusters, a subscription service would need to license 'must play' franchises from third-parties or invest in their own development capabilities that would take time and entail significant cost. Previous game-subscription services – Gaikai and OnLive – endured similar struggles, winding up with older titles that publishers were prepared to license cheaply or unsuccessful titles that went straight to the discount bin. Google's announcement that it was shutting down its internal game development for its Stadia streaming service means it will be entirely dependent on titles from other game developers and publishers. As of early 2021, over 45% of the games on Stadia were released in 2018 or before.
- Technical bottlenecks such as high latency pose challenges for cloud-based games that rely on 'twitch' reflexes such as multiplayer first-person shooters while broadband speeds may fall short of the speeds required to play ultra high-definition games at full-resolution.
- Emerging technologies such as ray tracing and VR are additive for existing publishers with high-quality franchises and proven development capabilities. They have pushed forward the technical and artistic frontier – think the smooth cinematics of games like *Red Dead Redemption II, God of War Ragnarök, Returnal* and *Horizon Forbidden West* or the artistic vision of games like *Stray, Elden Ring, The Legend of Zelda: Tears of the Kingdom, It Takes Two and Ratchet & Clink: Rift Apart*. The ability to marry art direction, technical prowess and gameplay represents a powerful bulwark for legacy video game developers against tech companies, notwithstanding their advantage in technology tool creation. The culture required to build successful games is distinctive enough that even media and entertainment powerhouses like Disney have struggled to break into the industry (Barclays, 2023).

Shoppers queue for the Sony PlayStation 5 outside Game at Westfield in London (Guardian, 2020). Even if cloud-based gaming becomes the norm, the hardware market – whether PC or console – is unlikely to disappear anytime soon. The enthusiasm for the new PlayStation 5 and Xbox Series X is illustrative: both consoles sold out immediately, crashing websites and overwhelming delivery companies. High demand left users scrambling for updates and waiting for months for restock.

10 VR/AR as a new creative medium

Trends shaping the future of the Creative Industries

Virtual reality (VR) and augmented reality (AR) blur the line between reality and illusion in novel ways

WHAT IS THIS TREND?

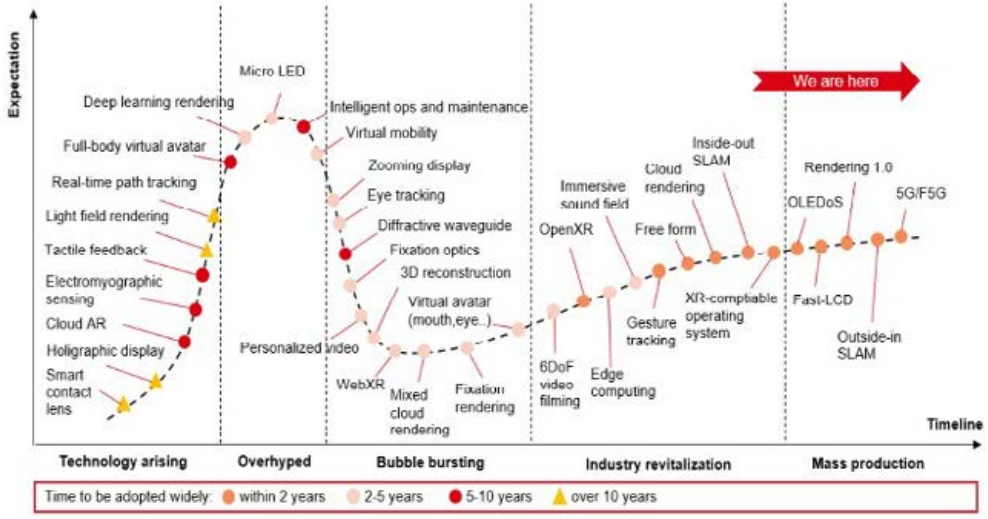
After many false dawns there is a renewed focus on virtual reality (VR) and augmented reality (AR) as technology improves, prices fall and more content becomes available. This focus is reflected in a doubling in VR/AR patents between 2018 and 2021. For example, approximately 30-50% of Apple's patents in recent years have been attributed to immersive technology functionality – an impressive commitment given that Apple is a top 20 patent filer in the US. Noteworthy developments include:

- Base functionality is improving rapidly. Following the success of Facebook's Oculus Quest 2, tech giants and hardware manufacturers are likely to enter or re-enter the VR market, driving further innovation. There is still room for improvement: to attain the resolution approaching the limit discernible by the human eye, headsets need to display >12000 pixels per inch which is much more densely packed than current, state-of-the-art VR displays while ensuring high refresh rates to avoid nausea (>120Hz). New material designs such as meta-OLEDs that combine multiple nanopatterned mirrors to create a single light source hold particular promise for matching VR headsets to the resolution of the human eye. Advances in eye tracking technology (i.e. foveated rendering), high resolution pass-through video, battery technology and wireless power and new haptic accessories should also help boost adoption.
- New tools support the creation of entire 'worlds' that can be plugged into various environments virtually on demand. For example, Metahuman (from Epic Games) enables the creation of characters that resemble real humans in minutes, complete with facial gestures and emotions but are entirely computer generated. Microsoft's Flight Simulator is a stunning demonstration of these types of capabilities in action, operating as it does a 500,000,000 square kilometre reproduction of the earth, with two trillion individually rendered trees, 1.5 billion buildings, and nearly every road, mountain, and city globally (Stuart, 2020).
- In the future, haptic devices will offer an extra dimension to the VR world. H2L, a Sony-backed company and the Spanish start-up OWO have designed wearable devices that detect the flexing of human muscles, allowing the user's avatar to copy the body's movements and people to feel the presence and weight of objects. The technology uses electrical stimulation to manipulate the arm muscles and mimic sensations, such as catching a ball or rain splashing against the skin (Purtill, 2021; Sugiura, 2022).

*VR replaces the real world by placing the user in an entirely digital experience; AR superimposes digital information atop physical environments

WHAT IS THIS TREND? (CONTINUED)

Technology evolution of the VR/AR industry



Note: Graphic representation of the maturity and adoption of technologies and applications related to VR/AR. It displays time to wide adoption (x-axis) vs. expectations (y-axis). Source: Gartner and HSBC (2021).

Sensors, inputs and peripherals required to deliver immersive reality

Type	Overview
On-body sensors	On-body sensors are tools to track and identify users and the objects around them to **accurately reflect their limb movements and the physical objects around them in the virtual world** (eg, devices that are handheld or concealed in wearables)
Off-body sensors	Off-body sensors allow for more **precise recreation of elements of the physical world** in virtual spaces with consumer applications like Nintendo Wii or enterprise applications such as spatial-mapping hardware
Haptics	Haptic devices (eg, haptic gloves or vests) **convey the sense of touch to the user** with vibrations to augment virtual experiences
Holography and volumetric video	Holograms and volumetric video diffract light across multiple wave fronts to display **high-quality, 3-D representations that can be seen without using a headset** (eg, Microsoft Mesh or Google Project Starline)
Electromyography (EMG)	EMG is a neuro technology that **detects and records electrical activity from muscles to control movement and manipulate objects** in virtual spaces and is being used in wearables to augment AR/VR headset devices
Microelectromechanical system (MEMS)	MEMS uses midair ultrasonic waves to **allow users to physically feel tactile experiences without any wearables**

Source: McKinsey (2022)

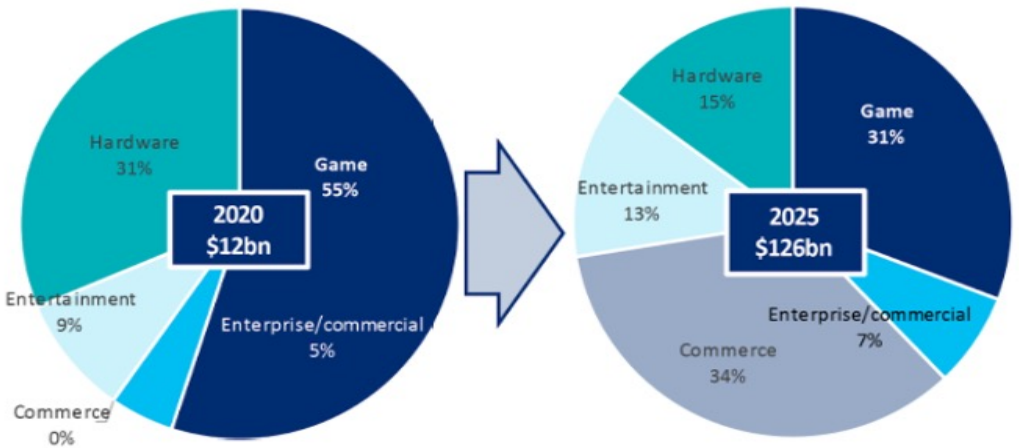
VR/AR market is expected to pick up after successive false dawns

WHY DOES THIS TREND MATTER?

VR should be seen as a new medium with unique properties rather than an enhancement of an earlier medium such as adding 3D to films or colour to TV (Bailenson, 2018). Insights from neuroscience reveal how the brain treats VR experiences more like actual experiences than media experiences and how a sense of presence and immersion can be established with low thresholds of detail and realism (Bailenson et al., 2019). For example, experimental evidence finds that subjects respond physiologically to computer-generated figures as if they were real people, connect virtual experiences to real-life memories and even find food more pungent or tasty in virtual settings (Slater et al., 2006; Segovia et al., 2009; Stelick et al., 2018). VR experiences have become sufficiently immersive that individuals can appreciate the beauty and wonder of the natural world without having to travel or harm the environment (Markowitz et al., 2018). VR has been used to tackle PTSD and anxiety disorders, allowing individuals to relive and explore traumatic experiences in a safe setting so that that the experience becomes linked to the safety and support of the clinical setting (Bailenson, 2018). It may also have a therapeutic effect for people with insomnia (Basu, 2023).

Within the cultural sector, museums are leveraging VR/AR to unlock the power of collections and reach people in places they could not previously. A good example is the *Mona Lisa: Beyond the Glass* at The Louvre that allowed visitors to get intimate with the iconic painting without having to crane their necks or endure irritated, sweaty crowds. They have potential to engage people longer with exhibits at a time when attention is more limited, valuable and scarce than ever.

VR/AR share by purpose (software and hardware)



Source: Citi (2020).

? WHY DOES THIS TREND MATTER? (CONTINUED)

Social VR has the potential to change the way individuals communicate, collaborate and conduct business. Unlike a 2D screen, VR can capture a host of nonverbal cues – think how the face alone is made up of over 40 muscles that are used in specific combinations to communicate complex emotional information (Google, 2021). This matters because successful learning and transmission of knowledge depend on subtle forms of teacher-student mimicry. In particular, VR is a powerful medium for experiential learning that is the norm in the creative industries. Experiential learning is difficult to learn from books, but can be expensive and even risky for trainees to practice in the 'wild'. For example, the aviation industry credits VR-based education as a major contributor to a halving of human error-related airline crashes since the 1970s. More subtly, VR allows users to engage in perspective taking – to see and hear as if they were experiencing someone else's point of view in the real world. Research finds that VR can widen the circle of empathy to minority groups, other species, the planet and even to individuals and entities that pose a threat provided the threat is not made too personal (Oh et al., 2016). These tools open up rich possibilities in the heritage sector – for example, allowing users to learn about the past in a uniquely dynamic way and building a sense of historical empathy about others beliefs, goal, experiences and values that is hard to achieve in more traditional settings (Stapleton and Davies, 2011; Challenor and Ma, 2019). They can also be used by storytellers as they seek to develop authentic, psychologically rich characters to populate fictional worlds.

The global immersive reality market size is expected to grow at a compound annual growth rate (CAGR) of ~24% until 2035. At present, gaming and entertainment are among most current effective uses of VR/AR technology. Titles like *Astro Bot Rescue Mission*, *Half-Life: Alyx* and *Microsoft Flight Simulator* have set new standards for presentation, interactivity and accessibility. But VR/AR use cases are slowly expanding beyond gaming: the most mature solutions fall under learning and assessment, product design, development and demos, enhanced situational awareness and specific B2C applications such as retail and fitness (Bailenson, 2020). These benefits can be seen in subsectors such as design, advertising and fashion. VR/AR enables cheaper and faster experimentation. Before launching a new vacuum cleaner on the market, Dyson had to make 5127 prototypes – VR testing could cut the number of iterations required as designers can test and experience products in different ways. For their part, immersive ads provide an antidote to consumers lower tolerance for traditional campaigns. BAML (2022) reports that AR lenses have a 6x higher return on investment (ROI) than TV for personal care and beauty. Barclays (2022), meanwhile, draws attention to the growing virtual try-on market (VTO) that uses AR and AI to help consumers experience products as if they were in real life. It estimates that VTO could drive an additional 1.5pts of annual revenue growth and 50bps of margin expansion over the next decade for a brand and retailer P&L with 25% e-commerce exposure.

WHY DOES THIS TREND MATTER? (CONTINUED)

Use cases of VR/AR in arts and cultural sector

a.

a. Alejandro G. Iñárritu's 7-minute VR installation **Carne y Arena (Flesh and Sand)** was awarded a Special Award Oscar in 2017 for its uncompromising exploration of the plight of immigrants as they attempted to cross the US-Mexican border.

b.

b. Numerous behavioural experiments have been conducted in VR. A cow simulator lets users experience a day in the life of a cow destined for the slaughterhouse. Participants walk around a virtual pasture on all fours, drink from a virtual trough and jabbed by a virtual cattle prod. Experiments suggest increases in self-report measures of empathy and awareness of where meat comes from. Similar exercises have been run to increase people's connection with environmental issues such as ocean acidification.

c.

c. Still from V&A's *Alice: Curiouser and Curiouser* exhibition in 2021. VR offered a perfect canvas to bring to life one of the most surreal and imaginative stories of all time. The Art Gallery of Ontario (AGO) observes that the average visitor to the museum's collections spent on average only 2.31 seconds in front of each exhibit, highlighting the scope of technology to increase increase engagement.

d.

d. The heritage sector has explored the use of VR/AR for the purpose of teaching and remembering history. The Illinois Holocaust Museum and Education Centre in the US has sought to bring the experience of the Holocaust to life through its widely acclaimed *The Journey Back* exhibit. Immersive experiences such as the claustrophobic train ride to Auschwitz-Birkenau are interspersed with contemporary footage, memory sequences and real-time testimony from survivors. It highlights the power of VR to convey the weight of historical events such as slavery. Care will be needed when developing educational and historical visualizations as recognised by frameworks such as Seville principles (International Principles of Virtual Archaeology).

But there is a wide range of plausible outcomes for the technology

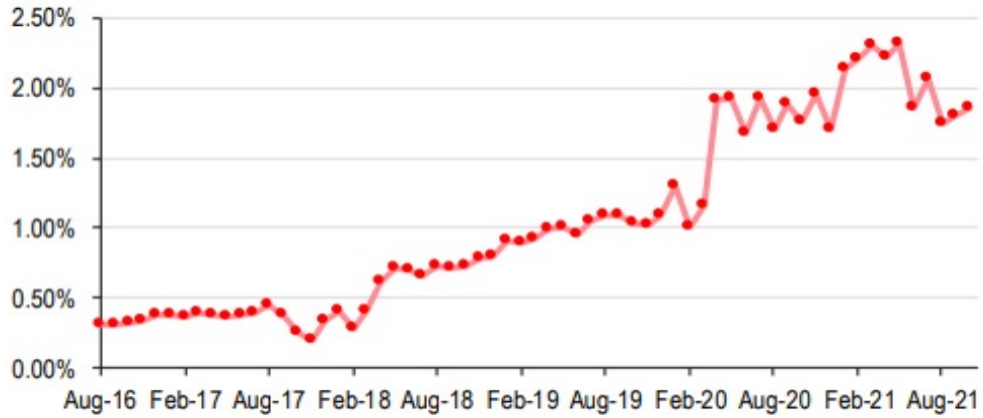
⚠ WHAT ARE SOME OF THE RISKS, UNCERTAINTIES AND TOPICS OF DEBATE RELATED TO THIS TREND?

Users are still waiting on a 'killer app' before taking the plunge with VR and sinking large amounts of money on hardware. Even today fewer than 2% of Steam users own a VR headset – and gaming is the frontier for VR adoption. High-fidelity and comfortable VR experiences will continue to come on stream, though technological progress is unlikely to resolve concerns some users feel about being completely walled off from the outside world. This lack of flexibility has led some commentators to conclude that enterprise AR will provide the main opportunities for growth in VR/AR market in the foreseeable future.

But AR devices face greater technological bottlenecks than VR. The main issue confronting AR is the lack of technology permitting the remapping of light into a person's retina to adjust physical focal distance and deal with issues like object occlusion of real background objects (HSBC, 2021). In addition, existing AR devices do not augment (10-20%), limiting value-add while there is the challenge of adjusting device brightness to different environments. Apple's new Vision Pro headset with a price tag of $3500 represents a substantial improvement over the current generation of the technology. However, design challenges and the high cost of Micro OLED screens that are the size of a postage stamp have tempered expectations for the takeup of the device. Many advancements are still 8-10 years out and prices will have to fall by >50% in order to achieve scale and commercial viability (McKinsey, 2022).

The Holy Grail of social VR is still out of reach. For example, research finds that VR immersion leads to increased feelings of presence but this comes at the expense of memory recall and recognition that are necessary for social interaction (Oh et al., 2019). This result is consistent with the immersive qualities of VR draining users' cognitive resources and limiting their ability to retrieve information. It is also consistent with a novelty effect whereby users are distracted by the features available in the virtual environment. These effects are even stronger for users who must deal with real-world distractions such as a ringing phone, highlighting the importance of context and user traits.

Proportion of Steam users with VR headsets



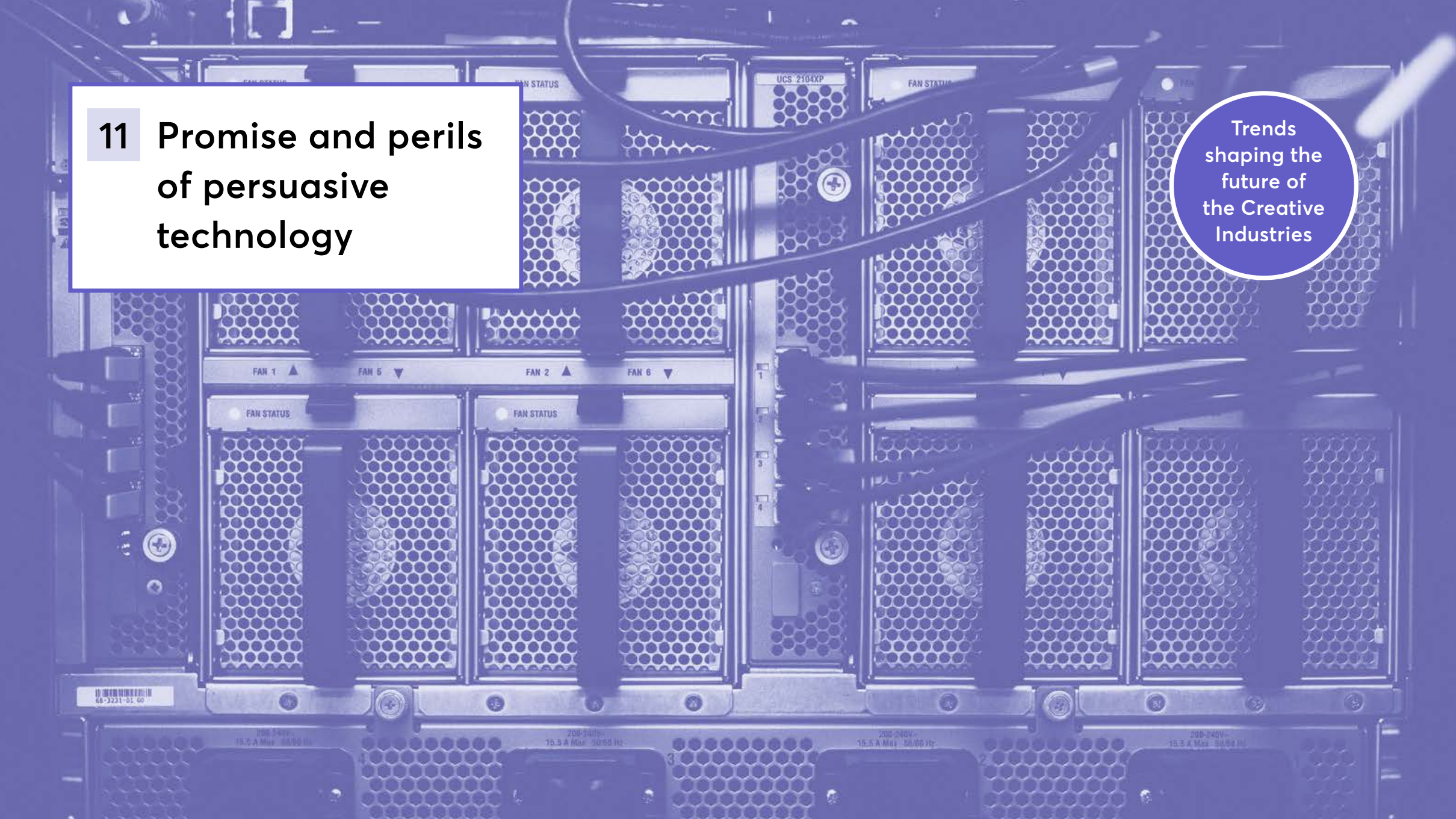
Source: HSBC (2021).

⚠ WHAT ARE SOME OF THE RISKS, UNCERTAINTIES AND TOPICS OF DEBATE RELATED TO THIS TREND?

VR disrupts tried-and-tested rules for storytelling and have yet to be replaced by new ones. There is a fundamental tension between VR that is about exploration and the freedom to look or move around and storytelling that is about control and an artist's desire to express a singular vision. Breaking out of traditional narrative methods, of course, is not unique to VR. For example, early Hollywood filmmakers came from theatre, so effectively filmed stage shows with one camera angle and no edits; actors exaggerated their actions as if trying to capture the attention of the back row rather than the camera in front of them. To this end, creators are experimenting with various techniques to balance storytelling with exploration ranging from the use of eye contact, positional audio, tracking objects, story breadcrumbs and scene pauses. They are also finding ways to overcome logistical challenges such as where to hide equipment and crew members in a 360-degree space.

Will creatives be able or willing to look beyond their own silos and draw on lessons from other sectors? For example, gaming has been a trailblazer in terms of incorporating mechanics such as 'storyworlding' and 'narrative magnets' that give user a sense of agency – the ability to control what unfolds – within a broader narrative structure (Riedl and Bulitko, 2013; Bucher, 2018; McDowell, 2019). Think games such as *Heavy Rain* and *Immortality*. But to date, the results with VR have been patchy. At times, storytelling can feel overly linear and scripted with maze-like options tethered to predetermined outcomes while the rewards from exploration are often unsatisfying and not worth the effort. But there are impressive examples of VR storytelling that have pushed the boundaries of the medium such as *Battlescar* by Arteo, *The Great C* by Secret Location and *Paper Birds* by Baobab Studios. Others see theme parks as a source of inspiration: the connection of rides to stories or characters is effectively the transference of audience agency to an immersive setting – a point grasped intuitively by Walt Disney decades ago.

Theme parks hold powerful lessons for new forms of interactive storytelling in VR. For example, there is no reason why a virtual theme park ride like Disney's Avatar Flight of Passage (picture above) could not, one day, be integrated into the movie experience itself rather than operate as a functionally separate experience.



11 Promise and perils of persuasive technology

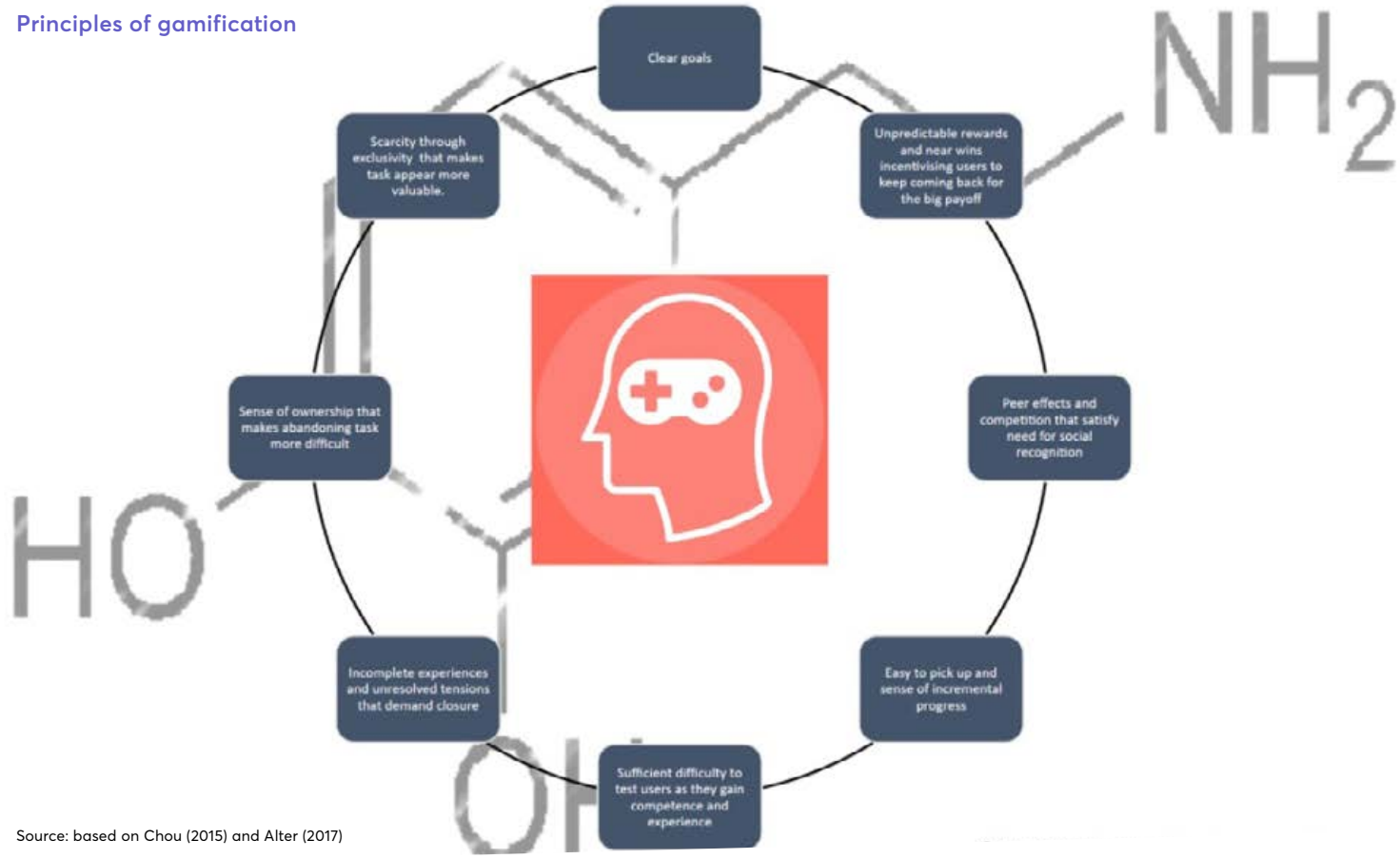
Trends shaping the future of the Creative Industries

The promise and perils of persuasive technology

WHAT IS THIS TREND?

Insights from neuroscience and behavioural economics about how and why people make particular decisions, combined with digitisation, social media and smartphones, are permitting designers to create sophisticated persuasive technologies. Fogg who was one of the first scholars to research the intersection between persuasion and computer technology coined the term 'Captology' (Fogg, 2002). Tools are carefully designed with explicit triggers to capture user attention and increase the long-term motivation to consume a given good or service. This includes social media apps withholding 'likes' on photos to deliver them in larger bursts so that eventual payoff is much more powerful; bottomless scrolling newsfeeds that make users want to scroll further in case something good turns up and share trading sites that shower users with digital confetti to celebrate transactions. Researchers have catalogued the widespread use of 'dark patterns' in online retail to nudge consumers toward purchases they would not otherwise make, exploiting perceived scarcity and social influence ('X number of people are looking at this hotel right now!') (Mathur et al., 2019).

Principles of gamification



Source: based on Chou (2015) and Alter (2017)

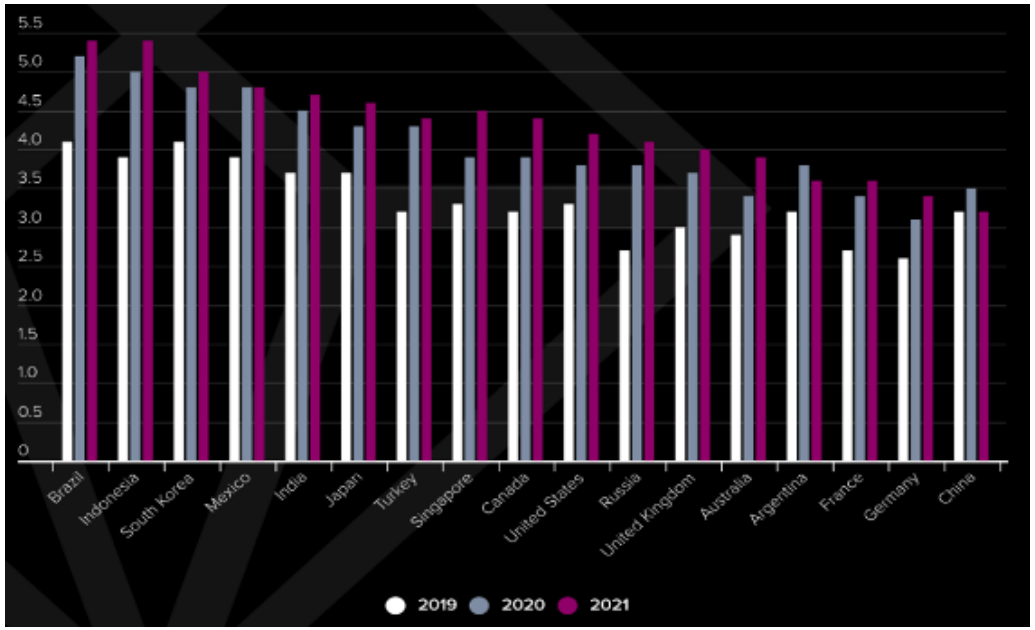
WHY DOES THIS TREND MATTER?

The popularity of these technologies and users' deep connection with them has raised concerns about their addictive potential. It is estimated that 60% of adults aged 18-64 keep their phone next to them when they sleep and more than 50% check email and social media feeds overnight while many report feeling anxiety and stress when they do not have access to digital devices. The inclusion of gaming disorder in the latest version of the International Classification of Diseases (ICD-11) – one of the few behavioural health addictions to gain official recognition – is a notable step towards acknowledging the downsides of digital technology.

These behaviours can have detrimental effects on wider economic and social life. Augiar et al. (2019) estimate that improvements in video games have lowered young men's work hours by 2% since 2004 as the pleasure provided by games kept them from pursuing careers as determinedly as they might otherwise, though others note that increasing gaming time has been offset by decreasing time spent watching television, movies and streaming video reflecting a shift in social norms that has made playing video games more acceptable at later ages (Kimbrough, 2019). More generally, Bank of England economists have speculated whether the crisis of attention and cognitive scarcity accompanying persuasive technology is eating into productivity growth – for instance, by making it harder to cultivate empathy that is seen as a vital 21st century skill (Nixon, 2017; Zimmermann, 2022).

The competition for attention could turn creative consumption and leisure into a zero-sum game. More time spent on activities supported by persuasive technologies could leave less time available for more traditional creative and cultural pursuits. This is particularly true for activities that monopolise or demand undivided attention like reading books as opposed to forms of attention that can be combined with other activities at the same time like listening to music (see chart on the next page for a typology). This battle for, and squeeze on attention also offers an explanation for the popularity of audiobooks and podcasts that users may perceive as a more time-efficient way to distil the contents of a book, the memeification of content and why younger people are increasingly turning to sources like Instagram and Tik Tok for their news (Page, 2021; Ofcom, 2022). It may also explain why radio, notwithstanding its obvious anachronistic form, still enjoys more engagement than streaming services since it is more passive and needs less self-curation by users.

Average Hours Spent on Mobile Per Day Per User

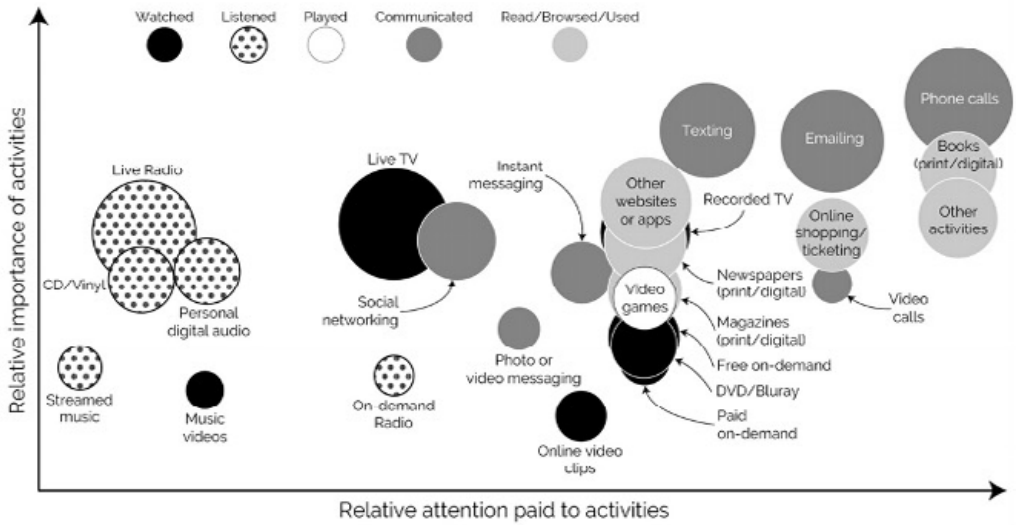


Source: data.ai 2022).

⚠ WHAT ARE SOME OF THE RISKS, UNCERTAINTIES AND TOPICS OF DEBATE RELATED TO THIS TREND?

Uncertainties over how policy and regulation will deal with persuasive technology. Some countries are introducing or debating regulation that would limit its use, particularly for children. In China, the video games sector was branded by state media as spiritual opium with limits placed on how much time children could spend gaming a week (Riordan, 2021). Policy that focuses on parental controls, time spent and account restrictions can help moderate but not prevent problematic use of technology (Barclays, 2023). Others are taking a less prescriptive approach. In part, this reflects the inconclusive nature of the research and the evidence around the impacts of technology – never mind that phenomena such as pathological gaming are not a one-size-fits-all disorder and apply to only a small subset of the population. In part, it reflects a belief that persuasive technologies, like technology in general, are neither intrinsically good nor bad. Lo et al. (2022) find that ideas and tools borrowed from the gaming community can improve online teaching and improve learning outcomes for students. This lends itself to a causal interpretation. A randomised control trial of the Mindspark3 – a computer-based adaptive learning platform – found positive results for the programme among secondary school students in urban India in terms of improved test scores and greater cost-effectiveness than traditional schooling models (Muralidharan et al., 2019; Pena et al., 2021). Gamification has also shown promise with preventative healthcare such as promoting physical exercise and tackling obesity, especially where it is tied to financial incentives (Bock et al., 2019). Design choices have a role to play in ensuring the baby is not thrown out with the bathwater – for example, some propose the use of 'fading' mechanisms that gradually reduce the use of gamification and help users to concentrate on activities for intrinsic rather than extrinsic reasons (Andrade et al., 2016).

Taxonomy of activities in terms of their demand on attention and their relative importance



Note: Taken from Ofcom's 'The Consumer's Digital Day: A research report'. The report was published in 2010, so may not reflect how activities are carried out or perceived today but it nonetheless provides clues on whether activities complement each other or substitute one another. Source: Page (2021).

12 Opportunities and challenges arising from Blockchain and decentralised technologies

Trends shaping the future of the Creative Industries

Blockchain technology has a number of attractive features that can be leveraged for use in the creative industries

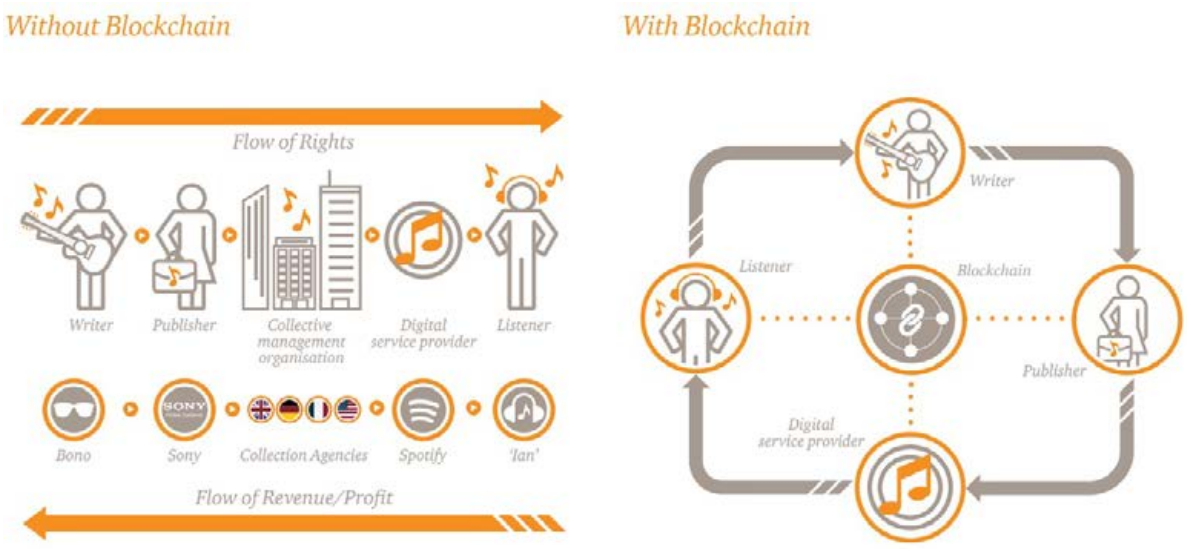
WHAT IS THIS TREND?

Blockchain provides a shared digital ledger of ownership and transactions verified by all participants in the network in a tamper-proof way. Due to the inherently decentralised nature of ledgers, Blockchain can support increasingly sophisticated transactions among a very large number of parties. It is estimated that 10% of global GDP could be stored on Blockchain by 2027 while the removal of trade barriers due to Blockchain could result in >US$ 1 trillion of new trade in next decade (WEF, 2018; WTO, 2018).

WHY DOES THIS TREND MATTER?

Blockchain has the potential to bypass traditional intermediaries and funnel more revenue to artists. In the music industry, title to any given piece of music or performance is recorded in multiple, often conflicting and/or incomplete records about ownership and use. The landscape for copyright licencing and royalty collection is bewilderingly complex with multiple collection societies operating in different territories, resulting in a high-cost base of administration and slow and often inaccurate payments. It typically takes 9-12 months for a songwriter to see his or her first royalty payment. With foreign collecting societies it can take upwards of 12-18 months (Songtrust, 2022; Tunecore, 2022). These issues are well-understood by the industry, though efforts to create a single database of rights ownership via the Global Repertoire Database have made little headway to date.

The application of Blockchain technology in the music industry

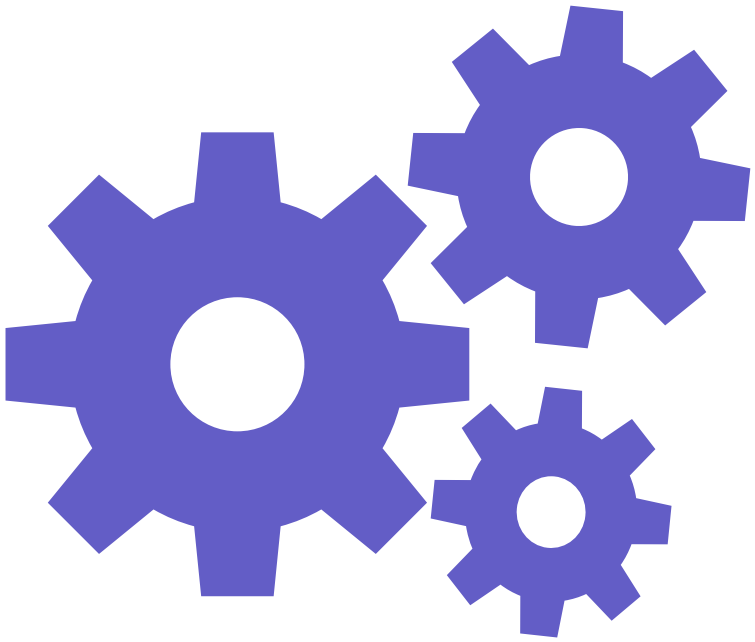


Source: PWC (2018).

WHY DOES THIS TREND MATTER? (CONTINUED)

Additional benefits of blockchain for the creative industries:

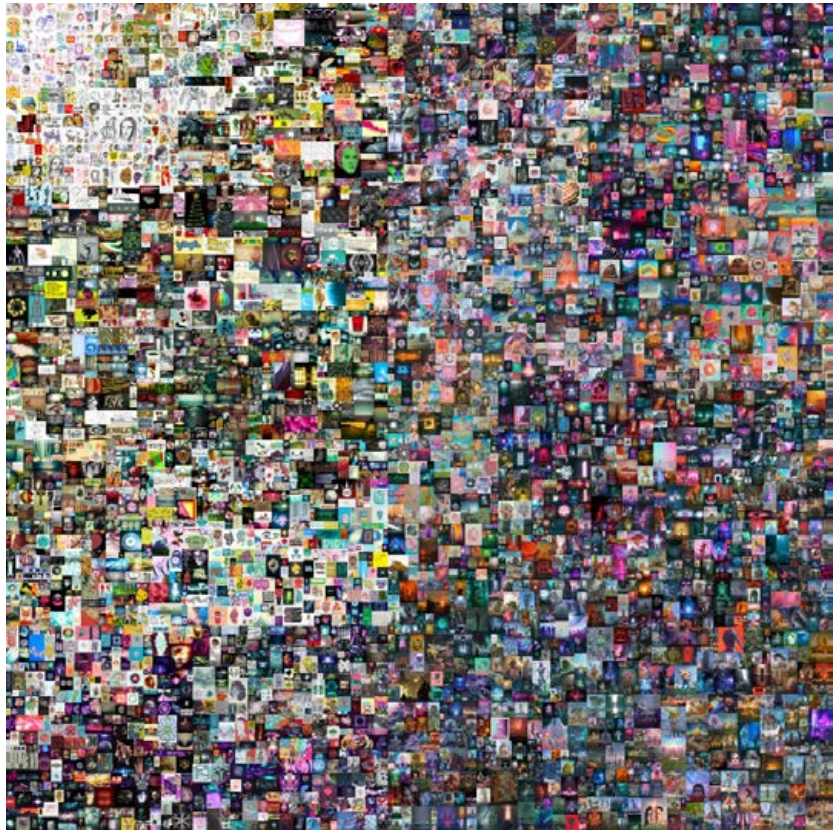
- Smart contracts built on Blockchain could provide greater security to individual creatives by automatically monitoring and executing contract terms while the ability to validate past behaviour and reputations is conducive to deeper collaboration.
- Comprehensive and precise tracking makes micropayment pricing and sophisticated paywall models more feasible while empowering secondary content owners: peer-to-peer file sharing could become a legitimate practice that is subject to control and monetisation.
- Creation of digital scarcity and exclusivity via authentication of original works and limited editions. In 2021 ~$41bn was spent on NFTs – digital assets verified using blockchain technology (Murphy and Oliver, 2021). The current boom has mostly been for digital art but musicians, writers, influencers and sports franchises are using NFTs to monetise digital goods that had previously been cheap or free. Nike recently bought RTFKT – a virtual shoe company to mint virtual trainers that might be worn in any future metaverse. Like other luxuries, an NFT's appeal derives as much from who owns one as its intrinsic value. For example some collectibles offer purchasers access to gated channels on chat platform Discord as well as meetups and parties.
- Tokenisation – the process of real assets into fractions of ownership on Blockchain could enhance liquidity, price discovery and access to high-value illiquid assets. This trend is already emerging in the market for cultural goods where businesses such as Otis Wealth, Masterworks.io and Stanley Gibbons let investors purchase fractional shares of fine art, rare books, comics and stamps.



⚠ WHAT ARE SOME OF THE RISKS, UNCERTAINTIES AND TOPICS OF DEBATE RELATED TO THIS TREND?

But there are substantial barriers to blockchain adoption:

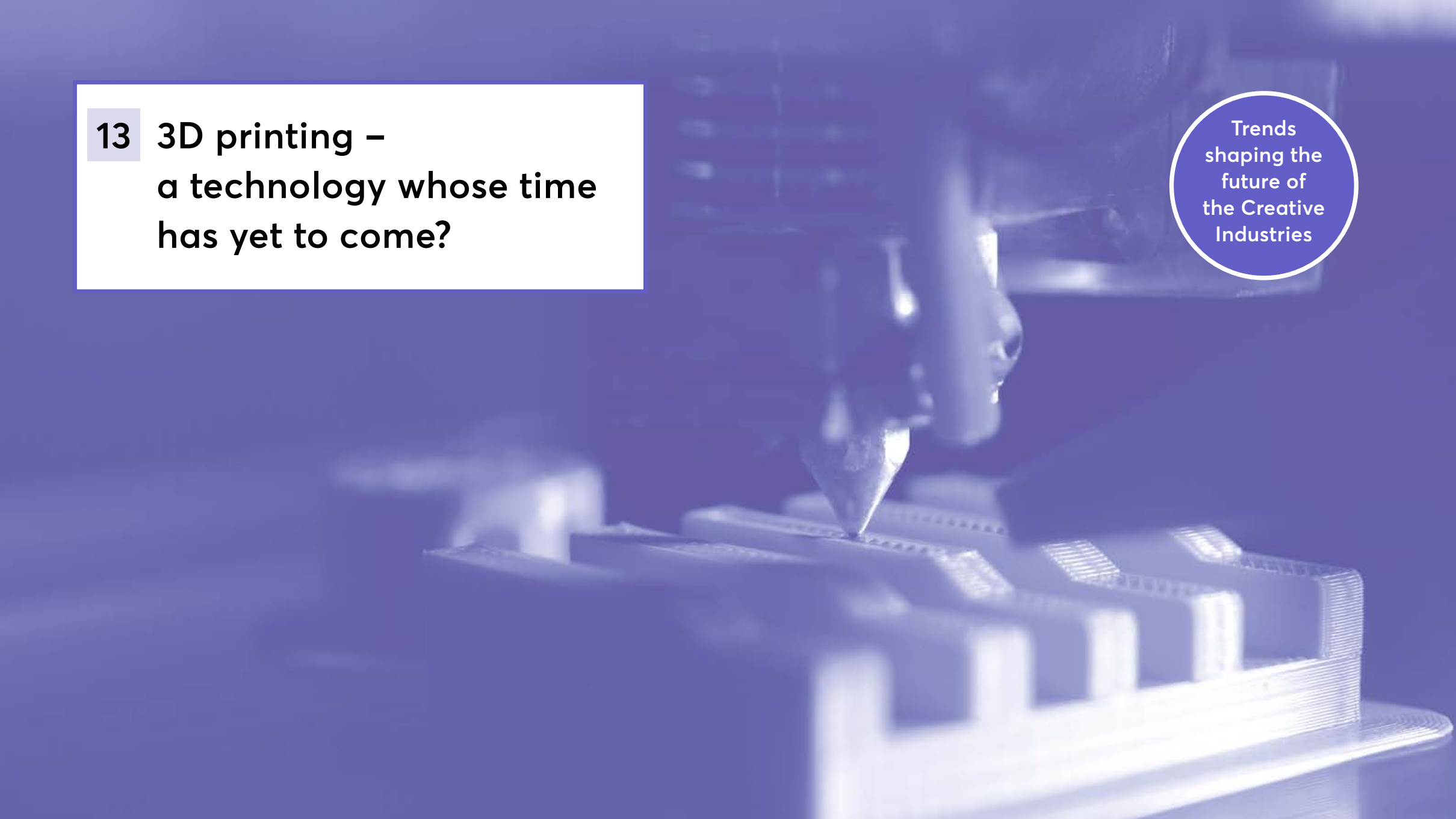
- Low levels of awareness – most businesses are unlikely to adopt blockchain until they have seen it successfully implemented by other market participants.
- There are currently multiple competing products and technologies that defeat the purpose of distributed ledgers and fail to leverage network effects. Platforms that provide better decentralisation and security often lack required scalability while platforms that provide better security often lack desired decentralisation. Competing technical solutions – sharding, state channels and sidechains – remain works in progress.
- Difficulties in incentivising holders to share data and unite around single ledger – some of whom are heavily invested in status quo and/or fear tech players from outside the industry could end up capturing the spoils of innovation.
- Basic functionality on the ledger is weak or absent – currently there is no cash that would enable frictionless value transfer. Activities such as enforcement will still require real-world intermediaries of some kind.
- Fraud, speculation and market manipulation have been a feature of NFTs and other unregulated spaces. One common practice is wash trading – when a trader takes both sides of a trade in order to create the false impression of demand, thereby inflating the price of NFTs. On some crypto exchanges, wash trading can exceed 70% of all trading volume (Cong et al., 2022). There have been signs of irrational exuberance in the NFT market: large volumes of new entrants, fear of missing out (FOMO), rapid increases in prices, pump-and-dump strategies, high levels of volatility and low liquidity, though they may just reflect growing pains that are normal for any new technology and ultimately give way to a more sustainable development phase.



A digital collage NFT called 'Everydays – The First Five Thousand Days' by the artist Beeple sold for $69mn by Christie's in an online auction in March 2021. It was the third-highest price achieved by a living artist. Since then, the value of NFTs due has fallen dramatically to rising interest rates, tumbling crypto prices and limited utility. As an illustration, consider the Bored Ape Yacht Club collection built on the Ethereum blockchain. Bored Ape 8817, which featured a 'rare' monkey with gold fur, sold on Sotheby's metaverse marketplace for $3.4mn in late 2021. At the time of publication, the price floor for Bored Ape Yacht Club NFTs had fallen to around $50,000.

13 3D printing – a technology whose time has yet to come?

Trends shaping the future of the Creative Industries



3D printing and the creative industries – a technology whose time has yet to come

WHAT IS THIS TREND?

3D printing that allows objects to be built layer by layer according to a digital blueprint has supported the shift from mass production and economies of scale to mass customisation. Relatively inexpensive 3D printers make the creation of small batches commercially viable, lowering the requirements to achieve minimum efficient scale while the fact that there is no need for moulds or fixed tooling make it possible to produce a variety of products at no additional marginal cost. The capacity to reproduce almost any 3D shape gives designers the freedom to create parts that perform better or cost less than traditional alternatives. In recent years, the range of use cases has been expanded by the development of novel materials, including advanced polymers, nanoparticles, ceramics and even graphene composites.

WHY DOES THIS TREND MATTER?

3D printing has achieved an annual average growth rate of 20% over the past twenty years. It has begun to reshape the way that creatives design and produce goods. For example, the scope for rapid prototyping has yielded real benefits for architecture in terms of visualising, testing and communicating design concepts. In adjacent sectors like construction, concrete, foam and polymers have been used to produce affordable housing, serving communities living in extreme poverty and unsafe shelter.

The fashion sector, especially jewellery, watchmaking and footwear, is also leveraging 3D printing. Adidas Futurecraft features a multi-layered lattice structure improves the cushioning properties and performance of shoes that would be impossible to achieve with traditional injection moulded plastics. It is supported by technologies such as 3D body-scanning that use infrared depth sensing and imaging technology to produce an exact digital copy of the surface of an individual's body as a way to make bespoke clothing.

Over time, a world of 3D printing offers opportunities for small, local production. The implications for developing countries are ambiguous. One view is that 3D printing will support the reshoring of production at 'speed factories' and consequently will erode opportunities of developing countries to pursue export-led growth. Low-cost labour countries will be particularly weakened as 3D printing removes the need for assembly. An alternative view is that 3D printing could kickstart developing economies by relaxing infrastructure bottlenecks such as roads and shipping facilities that are needed to supply and distribute goods from large factories. 3D printing sites also require much less capital than conventional factories and are typically less complex, so less dependent on the quality of financial or regulatory institutions (D'Aveni, 2019).

Researchers have experimented with mixing a small amount of simulated crushed Martian rock with a titanium alloy to strengthen material in the 3D printing process. The hope is that they could in the future be employed on Mars to produce tools or rocket parts.

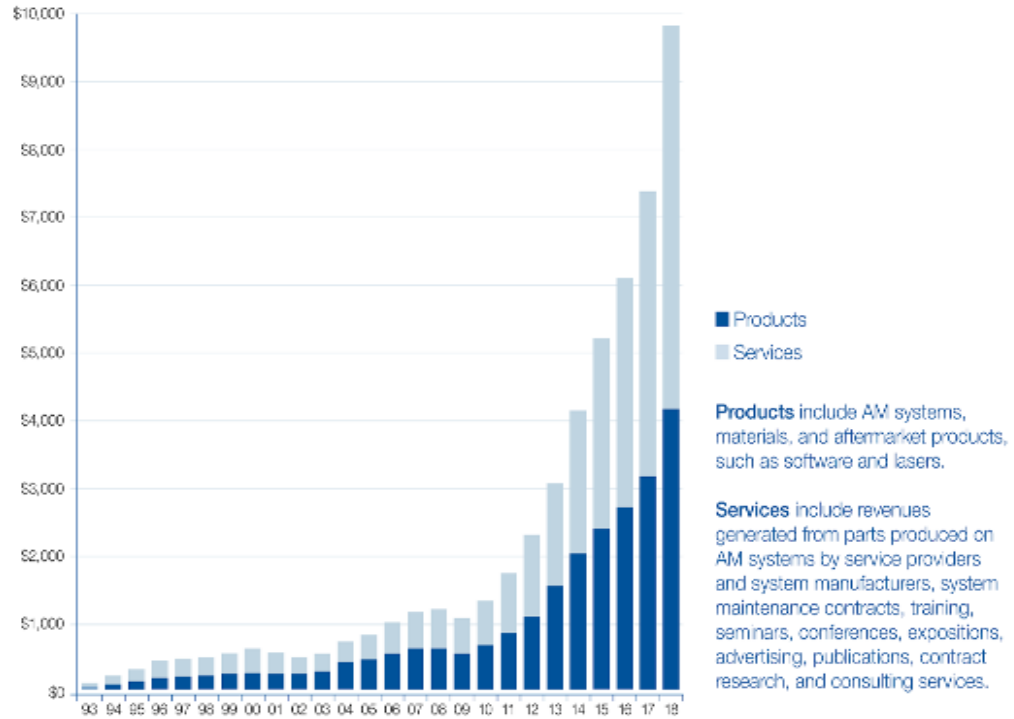
In Malawi and Kenya, companies like 14Trees have been able to build a 3D-printed house in just 12 hours for under $10,000. The reduced construction waste almost tenfold and reduced CO2 emissions by up to 70% relative to a standard house-building project. A 3D-printed school has also been completed.

⚠ WHAT ARE SOME OF THE RISKS, UNCERTAINTIES AND TOPICS OF DEBATE RELATED TO THIS TREND?

Despite the rapid growth of 3D printing revenues, they still make up a tiny fraction of global manufacturing revenues (=0.07% in 2018). To date, 3D printing has been used for first small-scale production and exploited primarily by market and innovation leaders (Freund et al., 2022). However, in the next 5-10 years, falling costs and diffusion of good practice could lead to its broader use in industry. Still there remain substantial obstacles to scaling up 3D printing:

- Reliability concerns around reproducibility and yield.
- Significant need for post-processing, increasing the already high cost of investments, operations and maintenance.
- Perception that 3D printing processes are too slow.
- Lack of 3D printing adoption strategy at firm level, including a clear value creation story.
- Weaknesses in complementary assets to enable decentralised manufacturing. For example, logistic costs for many light products are not high enough to justify investment in decentralised manufacturing near consumption markets.
- Consumer demand for mass customisation is still tentative – only 10% of online shoppers use product customisation options as they are currently too time-consuming (Spaulding and Perry, 2013).
- Skills shortages and lack of process standardisation.
- Need to convince regulators that 3D printing use cases such as construction and healthcare are safe and effective.

Global 3D printing revenues (in mn $)



Source: WEF (2020).

Globalisation

Trends shaping the future of the Creative Industries

1 Globalisation and deglobalisation?

Trends shaping the future of the Creative Industries

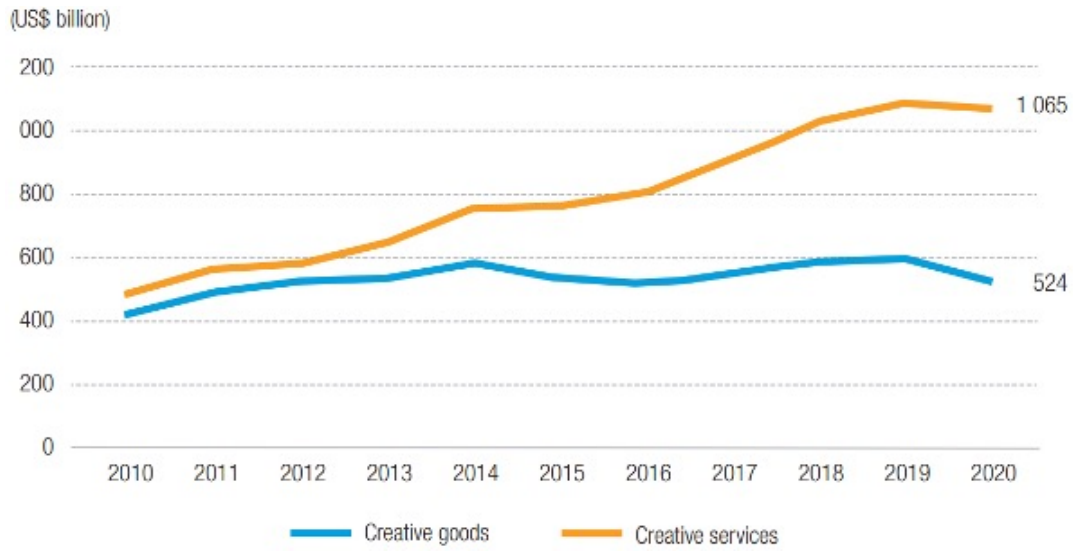
Great surge cross-border movement of goods, services and capital over past 30 years

WHAT IS THIS TREND?

Since the late 1980s the size of the global economy has approximately tripled and around 1.5bn people were lifted out of poverty thanks to deepening globalisation and the dismantling of trade barriers in large developing economies. Between 1995 and 2010 the pace of global trade growth grew at twice the pace of global GDP. This phase of globalisation has been characterised by:

- **The expansion of global value chains (GVCs) and fragmentation of production across countries**. By joining a GVC, poorer countries can bypass the need to build up entire industries from scratch, supporting growth and development (Baldwin, 2016). Fragmented production, enabled by technology, makes it possible for firms in developing countries to enter foreign markets at lower cost and benefit from specialisation in niche tasks in addition to accessing productivity-enhancing technologies and improved management practices generated elsewhere. It is estimated that a 1% increase in GVC participation boosts per capita income by more than 1%, or much more than the 0.2% income gain from standard trade (World Bank, 2020).
- **The growing importance of service exports to trade**. The share of service exports in total exports stood at 20% in 2014, up from 9% in 1970 and has grown at a faster pace than trade in goods since 2011.

Global exports of creative goods and services, 2010–2020



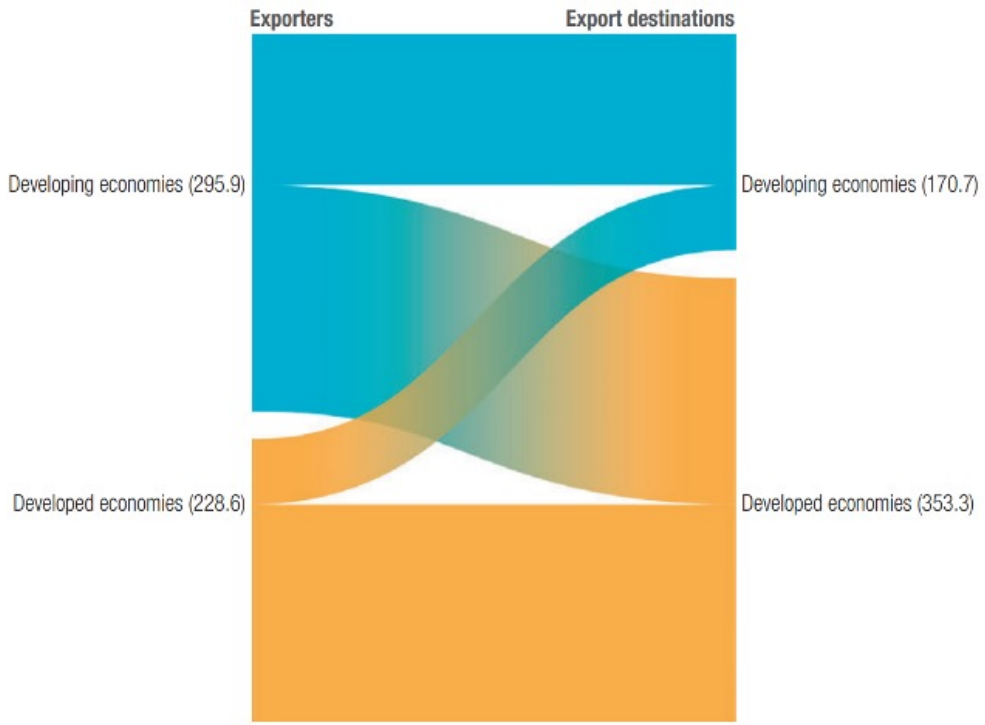
Source: UNCTAD (2022).

WHY DOES THIS TREND MATTER?

International trade in creative industries generate increasing revenues for businesses and countries. Creative goods exports, on average, grew by 3.5% a year from 2006 through 2020, compared to a 2.4% average annual growth of total exports. Creative services exports doubled over the last decade – again growing significantly faster than overall services trade and today vastly exceed exports of creative goods. Interestingly, creative services proved more resilient during the Covid-19 pandemic than other services sectors, falling by only 1.8% in 2020, while exports of all services fell by 20% due to the hit to travel and transport services. Indeed, creative subsectors such as software services actually registered growth (5.6%) during this period.

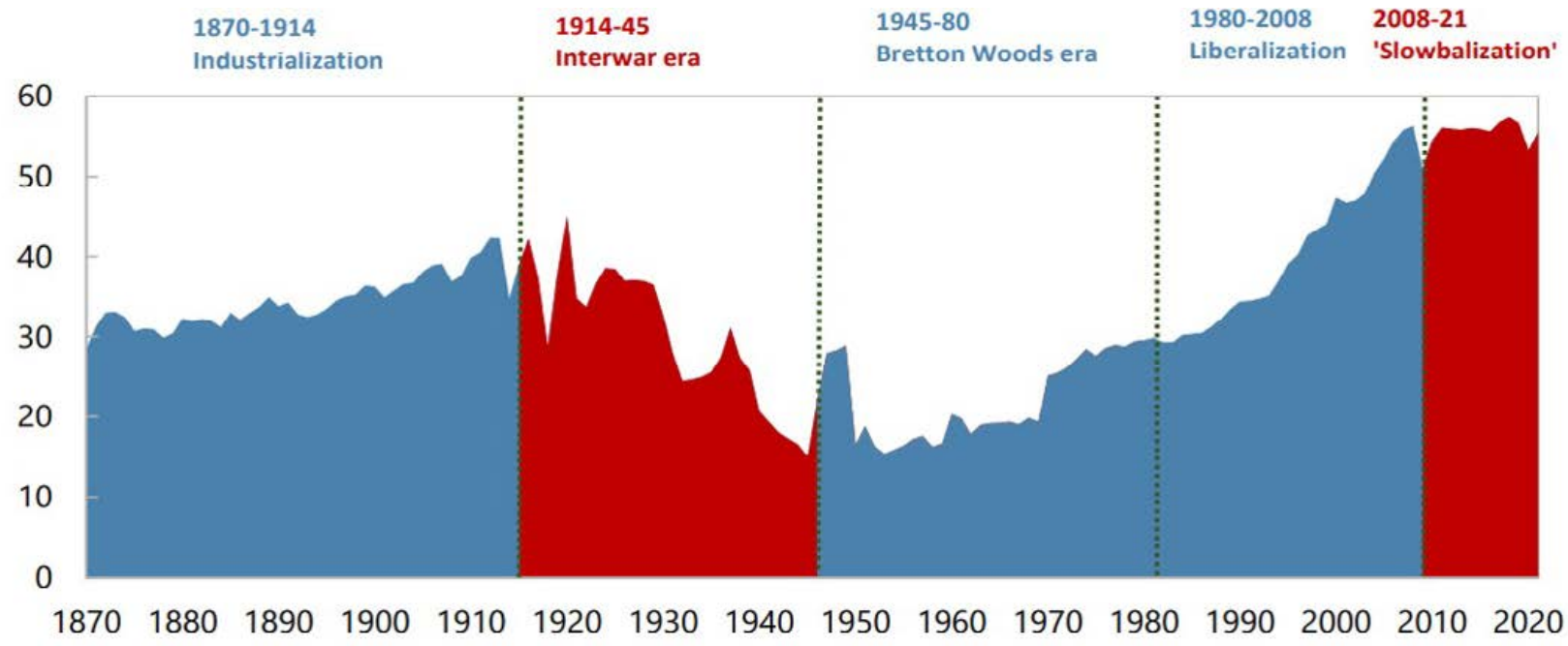
Global trade patterns have been redrawn in novel ways. Concentration in the origins of traded products is a salient feature of the global creative economy. The top ten exporters capture more than two-thirds of creative goods and services exports with goods exports led by developing countries, specifically China and services exports dominated by advanced economies. However, niches are emerging: the least developed countries (LDCs) increased their creative goods exports by more than 17-fold between 2002 and 2020 thanks to boosting exports of fashion and interior design products. South-South trade has also emerged as a vibrant channel for trade growth. In 2020, South-South trade in creative goods accounted for 40.5% of creative exports by developing economies. Note developed economies still principally trade creative and cultural goods among themselves: in 2020, 77.6% of their creative exports were shipped to other developed markets. However, there are important exceptions to this trend, notably the increase in Chinese investment in developed markets. Technology, Media and Telecom (TMT) is the most favoured sector in China's outward M&A. Examples include Wanda Group's acquisition of Legendary Entertainment for $3.5bn in 2016 and Tencent's purchase of video game developers like Riot Games and Sumo Group from the UK (EY, 2022).

Export flows and destinations by developing and developed economies, 2020



Source: UNCTAD (2022).

Trade Openness through time, 1870-2021 (Sum of exports and imports, percent of GDP))



Sources: Jordà -Schularick-Taylor Macrohistory Database; Penn World Data (10.0); Peterson Institute for International Economics; World Bank; and IMF staff calculations.
Note: Sample composition changes over time.

Source: IMF (2023).

But globalisation has been losing momentum

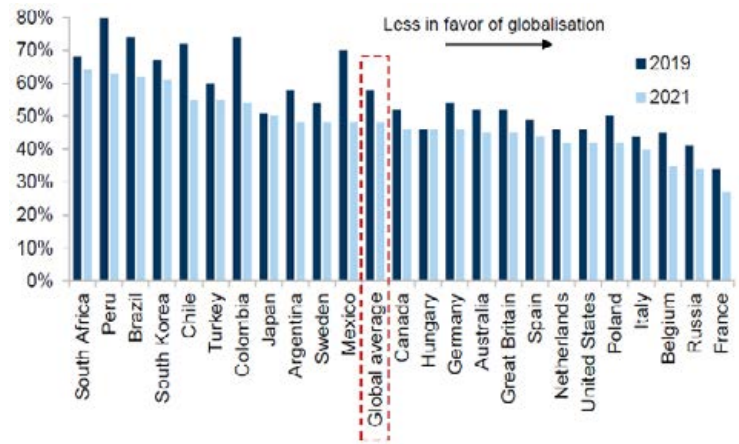
⚠ WHAT ARE SOME OF THE RISKS, UNCERTAINTIES AND TOPICS OF DEBATE RELATED TO THIS TREND?

The global economy has witnessed a levelling-off of flows of goods and capital, and a surge in trade restrictions following the Great Financial Crisis. The sluggish economic recovery has been accompanied by a growing debate about the merits of multilateralism and the unequal benefits of globalisation. It is echoed by the academic literature that highlights substantial adjustment costs associated with expanded trade and how important groups in society may miss out on its benefits (Autor et al., 2016). A parallel debate has played out over immigration policy (Wolf, 2023).

Waning support for globalisation has contributed to the appeal of inward-looking policies and opposition to new trade and investment agreements, symbolised by the UK's decision to leave the EU in 2016.

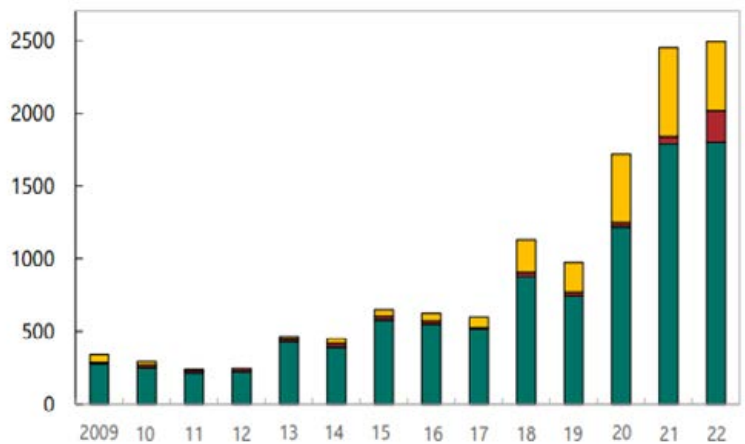
Other trends that have weighed on globalisation include weak business investment that is the most trade-intensive component of domestic demand in the wake of the 2008 financial crisis, persistent imbalances between surplus countries and deficit countries and the rebalancing of the Chinese economy away from investment and exports and toward consumption coupled with a growing ability to source inputs domestically (Constantinescu et al., 2020).

Global exports of creative goods and services, 2010–2020



Source: Goldman Sachs (2022)

Trade restrictions imposed (number)



Source: IMF (2023)

A new technological Cold War?

⚠ WHAT ARE SOME OF THE RISKS, UNCERTAINTIES AND TOPICS OF DEBATE RELATED TO THIS TREND?

Geopolitical tensions have deepened fault lines in global economic linkages. China-US disputes over trade, technology and media have been rising in recent years. Taking a hard line on China is the only issue in the US Congress where there is bipartisan consensus (albeit is bark has been louder than its bite to date). A record-low 15% of Americans view China favourably today, down from a peak of 72% in early 1989 (Brenan, 2023). New protectionist measures have led both to an overall decline of global trade and FDI volumes as well as a diversion of existing trade and FDI trade flows. Trends partly reflect the so-called Thucydides trap – the dangers that arise when an incumbent is confronted by a rising power: the rising power feels frustrated and the incumbent feels threatened and have given rise to a particular cultural outlook (Allison, 2017; Esty, 2022).

Both countries have been taking steps to decouple their economies. In October 2022, President Biden introduced sweeping controls barring US companies from exporting critical semiconductor technology to China. These include controls on cutting-edge chips, as well as chip design software, chip manufacturing equipment and US-built components of manufacturing equipment – described by one thinktank as 'strangling with an intent to kill' (CSIS, 2022). Complicating matters is the fact that the global semiconductor industry is now dominated by Taiwan and chipmaker TSMC. Taiwan accounts for more than 90% of global production of the chips that power almost all advanced civilian and military technologies, leaving the global economy extremely reliant on fabrication plants that would be in the line of fire in any military conflict over Taiwan (Miller, 2022). Disputed islands in the South China and East China Seas, India's Himalayan border and the broader Asia-Pacific region are also potential flashpoints.

In China, there has been considerable ambivalence about deeper integration and continued marketisation. Issues are increasingly framed in the rhetoric of self-sufficiency and reducing reliance on the West. China's Belt and Road Initiative (BRI) is aiming to deepen economic and cultural links with many developing countries. It has been viewed by some as a tool of influence and a way for China to establish strategic footholds elsewhere. By 2027, the BRI is expected to span 65 countries and account for a third of global GDP and two-thirds of the world population. Culture is at the centre of this vision consistent with President Xi Jinping's belief that 'the disintegration of a regime often starts from the ideological area'. For example, China's assistance for digital infrastructure projects in Africa is linked to cheap access to television stations such as StarTimes that offer Chinese programming in English and local content (Jedlowski, 2021). This has been supported by more direct measures. In 2013, StarTimes took a majority stake in the South African satellite TV company TopTV. The firm also obtained licenses for signal distribution and content provisions through its partnership with TopStar, a Zambian state broadcaster. Meanwhile, China has used content-sharing agreements to extend the scope of its Africa-related propaganda. For financially challenged African outlets, these agreements represent an important source of funding while lending Chinese propaganda an air of grassroots authority and authenticity. As of early 2023, news organisations in Egypt, Ghana, Kenya, Nigeria, South Africa, Zambia and Zimbabwe had all signed media cooperation and content-sharing agreements with Xinhua, China's official news agency (Eisenman, 2023). This explains the intensifying scrutiny of China-affiliated social media, including calls for restrictions and even prohibitions on the use of popular platforms like TikTok.

⚠ WHAT ARE SOME OF THE RISKS, UNCERTAINTIES AND TOPICS OF DEBATE RELATED TO THIS TREND? (CONTINUED)

Tensions have been reinforced by the Covid-19 pandemic and Russia's invasion of Ukraine that have seemingly pitted large autocracies against liberal democracies. Efforts to move activity away from countries that are perceived as unfriendly is likely to bring new consequences, and costs, for the global economy. Today closed and electoral autocracies account for more than 30% of global GDP, more than double their share at the end of the Cold War. They also represent more than 60% of FDI inflows, up from 10% in 1989, meaning that decoupling will not be straightforward (Economist, 2022).

Fragmentation is also taking more subtle forms. Data flows across borders are rubbing against very different approaches, based on differences in regulatory philosophy. UNCTAD (2021) contrasts the US' market-oriented approach; China's hybrid security-oriented and digital development-oriented approach (Berja et al., 2021); the EU's rights-oriented approach; Russia's security-oriented approach and India's domestic development-oriented approach. The challenges of reconciling these differences are illustrated by the decision of the European Court of Justice in Schrems II that struck down the EU-US Privacy Shield, a data-sharing agreement, for failing to protect EU citizens' privacy.

In sum, trade tensions between the world's two largest economies have the potential to divide the world into two digital regimes with limited interoperability. The costs will fall heavily on tech hardware and content industries that are characterised by high levels of interdependence. A recent example is the breakdown of the 14-year partnership between gaming giants Activision Blizzard and NetEase. In turn, countries will find it difficult to avoid picking sides because they have significant trade relations with a particular market. For example, Japan is the first G7 country that has begun subsidising its companies to leave China. At the same time, flows of creative and scientific talent are beginning to suffer (Xie et al., 2023). Relations with increasingly influential countries such as India that have been courted by both the US and China will also be worth monitoring. This is not to imply that things are set in stone: thus, China has shown an impressive ability to course correct and move in a different direction when the evidence has become overwhelming that changes are required not to mention policymaking is often more fragmented and fluid than supposed. However trends play out, a divided world is nonetheless likely to innovate more slowly, potentially weakening competition and creating more oligopolistic market structures.

Source: Financial Times.

Covid-19 pandemic exposed the fragility and overreliance on global supply chains

⚠ WHAT ARE SOME OF THE RISKS, UNCERTAINTIES AND TOPICS OF DEBATE RELATED TO THIS TREND? (CONTINUED)

Supply chain disruptions during the Covid-19 pandemic have put a renewed emphasis on economic security and making supply chains more resilient. Export restrictions on the export of key medical products served to harm trust in the benefits of an open trade system and have led governments and businesses to rethink their dependence on sources that are perceived as risky as well as the use of lean manufacturing strategies that involve minimising the amount of inventory held in their global supply chains. Instead, they are turning to more localised sourcing, diversification of the supply base, investment in general purpose equipment and skills and increased inventory at critical locations. Since the pandemic, references companies' earnings presentations of reshoring, onshoring, and near-shoring have increased almost 10-fold. These measures have been complemented by incentives and initiatives by governments to promote robust supply chains. Examples include the US 'Inflation Reduction Act', the European Chips Act and China's 'Made in China 2025'.

The need for resilience is especially pressing in creative subsectors such as fashion and apparel. The sector ranks 2nd of 23 industries in terms of its overall exposure to shocks and first in exposure to pandemics (MGI, 2020). It is more exposed to extreme weather conditions than other sectors given textile suppliers are typically located in regions prone to flooding or high heat stress. The finite nature of raw materials also leaves industry supply chains vulnerable to industry bottlenecks and volatile pricing.

At the same time, global supply chains raise environmental and social concerns ranging from overproduction, waste and toxic chemicals to poor workers' rights and brand-supplier relationships. Finally, diversifying garment production to near-shore locations is not always the costlier option. Thus, Spanish clothing giant Inditex's proximity sourcing allows it to exploit short lead times, with the process of getting garments from design-to-store taking only 3-5 weeks – by contrast, clothes produced globally can take up to a year. This matters given that the risk of markdowns is higher for longer lead-time, bulk-bought goods due to the volatility of demand and uncertainty associated with attempting to accurately predict trends and sizing of stock (Barclays, 2021).

The pursuit of resilience is likely to mean more focus on questions of ownership. Many governments saw the COVID-19 pandemic as a reason to expand the scope of existing national security and foreign investment regimes, going further than before in looking for reasons to block deals or impose remedies (Clifford Chance, 2022). These questions are particularly relevant for the acquisition of firms that possess valuable creative and technological assets. To this end, there needs to be a better understanding of the impact of foreign acquisitions – for example, how the location, organisation and output of R&D and knowledge production changes in domestic firms following an acquisition and the circumstances under which such acquisitions are most likely to support the national innovation system of the host country (Bertrand, 2009; Kwon and Park, 2018; Garcia-Vega et al., 2019; Lindemanis et al., 2022).

Fashion brands were considering near-shoring even before the pandemic

Source: Barclays (2022) based on 2018 Mckinsey and Sourcing Journal Survey

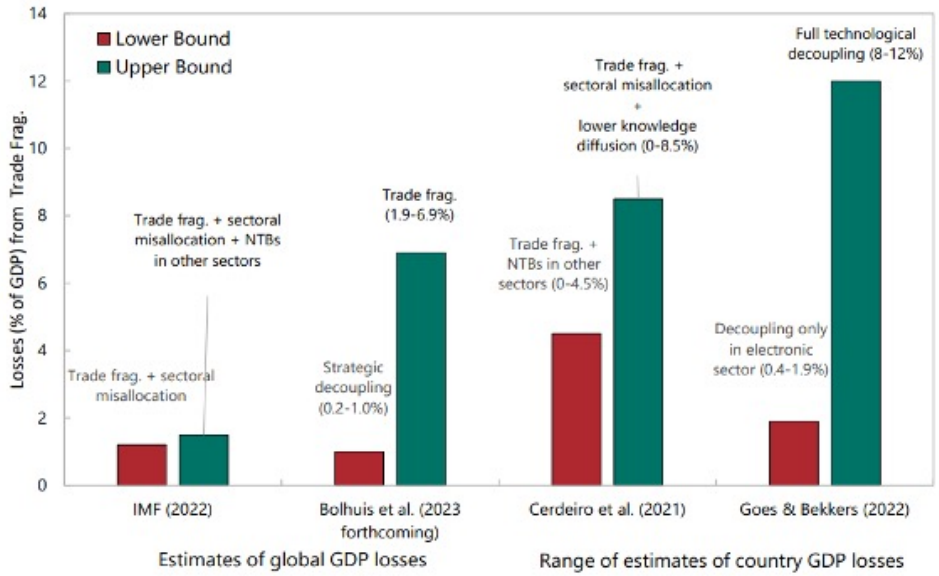
⚠ WHAT ARE SOME OF THE RISKS, UNCERTAINTIES AND TOPICS OF DEBATE RELATED TO THIS TREND? (CONTINUED)

But taken too far, decoupling as a result of reshoring and protectionism could have adverse consequences for the global economy. IMF (2023) estimates that longer-term cost of trade fragmentation alone could range from 0.2% of global output in a limited fragmentation scenario to almost 7% in a severe scenario – roughly equivalent to the combined annual output of Germany and Japan. If technological decoupling transpires, some economies could suffer losses of up to 12% of GDP. Indeed the costs could be larger still if accompanied by restrictions on cross-border migration, reduced capital flows and a general retreat in international cooperation.

Despite these headwinds, slowbalisation rather than deglobalisation is arguably a more accurate description of current trends. In contrast to cross-border movements of goods, trade in services, notably modern business services, has been much more resilient while cross-border data flows have continued to surge (Ariu, 2014; Loungani et al., 2017; MGI, 2022). This may suggest that the nature of globalisation is itself changing as flows in intangible areas replace those in tangible ones subject to differences across creative subsectors.

In an increasingly multipolar world, the more likely scenario is further regionalisation rather than strict reshoring. Europe is the most integrated region with four times as many regional linkages as global linkages. Regional linkages have also strengthened considerably in Asia Pacific with the recent Regional Comprehensive Economic Partnership, bringing the region a step closer to the prospect of a cohesive trading bloc. These trends recognise implicitly or explicitly the importance of proximity in trade: so-called gravity models of trade show that the distance to a trading partner and the size of its economy still matter for goods and services (Yotov, 2022). By contrast, weaker regionalisation is a barrier to the scalability of businesses in sub-Saharan Africa. Africa's intra-continental trade level stands at just 20% compared with Europe (69%) and Asia (59%), underscoring the importance of initiatives such as the African Continental Free Trade Area (AfCTA) to boost regional economic integration. Latin America is another region that has struggled to build regional interconnections and is cited as one reason for a 'missing middle' of dynamic midsize companies (MGI, 2023).

Long-Term Losses, Percent of GDP, from Global Trade Fragmentation



Note: Estimates of long-term losses (percent of GDP) from Global Trade Fragmentation from various studies. Numbers refer to GDP losses that are not directly comparable across papers as some refer to global GDP while others refer to specific regions or countries. Numbers in brackets represent ranges of losses based on assumptions about the severity of fragmentation and trade elasticities, and /or geographical ranges. The height of each bar corresponds to the upper limit of the range. NTBs = non-tariff barriers to trade. Source: IMF (2023).

Protectionism is not a new phenomenon in parts of the creative economy

⚠ WHAT ARE SOME OF THE RISKS, UNCERTAINTIES AND TOPICS OF DEBATE RELATED TO THIS TREND? (CONTINUED)

Historically, cultural policy has oscillated between the opposing impulses of openness and the demand for protection. Exposure to foreign content has been a powerful driver for learning and innovation - consider how French artists, coming from the Impressionist movement, were heavily influenced by Japanese aesthetics (Eschmann, 2020). At the same time, periodic angst about the intrusion of foreign cultural goods has led to governments to erect barriers in the creative industries. These responsibilities, whether it is to preserve national identity, exercise soft power or promote economic growth, have been defined not in technocratic, but in almost existential terms: "Creations of the spirit", observed French president François Mitterrand "are not just commodities; the elements of culture are not pure business. Defending the pluralism of works of art and the freedom of the public to choose is a duty. What is at stake is the cultural identity of all our nations. It is the right of all peoples to their own culture. It is the freedom to create our own images. A society which abandons to others the way of showing itself, that is to say the way of presenting itself to itself, is a society enslaved".

Policies are being updated for an era of digitisation. For example, under the EU's Audiovisual Media Services Directive (2018), streaming services operating in the region are obliged to have at least a 30% share of European content in their catalogue and ensure the prominence of that content. Member states can also obligate streaming services under their jurisdiction to contribute financially to the production of European works, including via direct investment in content and contribution to national funds. This is underpinned by efforts to bolster local producers who want to retain rights to their work, giving them power to sell spinoffs to multiple services and broadcasters (Barker and Abboud, 2022).

Analyses of services trade restrictiveness show that barriers to services trade are high, albeit with considerable heterogeneity across sectors, distribution channels, regions and levels of development. The OECD's Services Trade Restrictiveness Index (STRI) for 2021 indicate that creative services sectors like broadcasting (0.316) are more restricted than the average of all industries (0.261), while motion picture (0.22), sound recording (0.203), and computer services (0.217) are relatively less restricted. Nontariff barriers, quotas and prohibitions are also typically more restrictive in developing countries. Indeed, indicators may not capture relevant complexities – de jure legal requirements are not the same as the de facto uncertainties and constraints that businesses face on the ground.

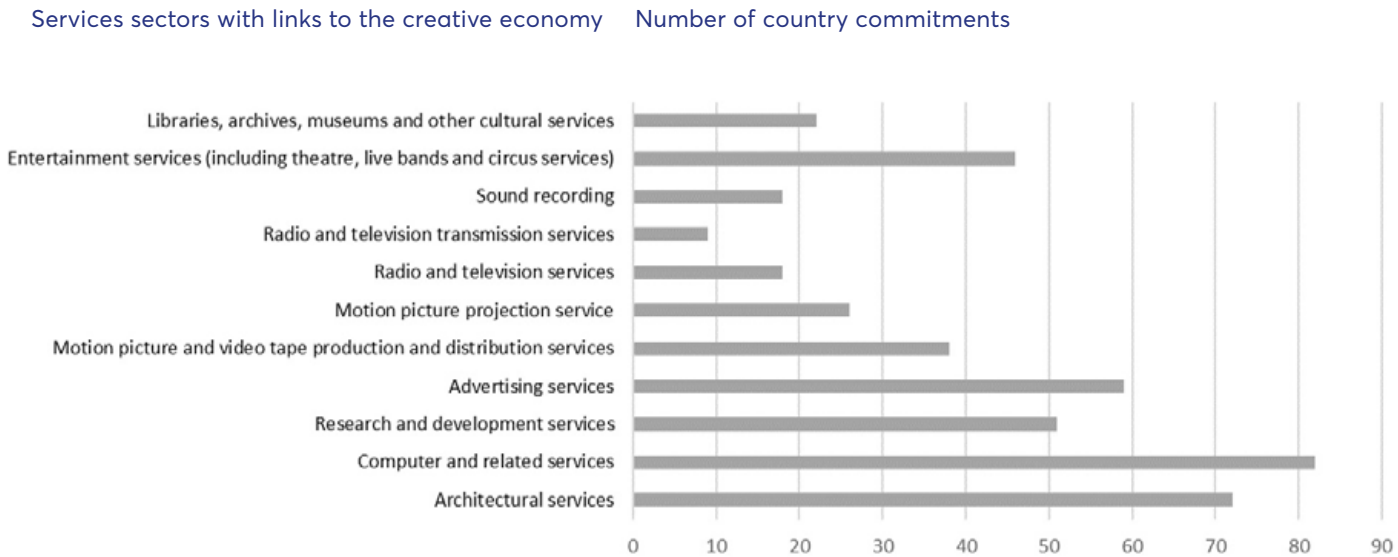
Like the wider impacts of protectionism, the outcomes of these efforts have been inconsistent. Some have been effective but most have not; indeed many have been harmful to the industries they have intended to help, pitting consumers against producers (Messerlin et al., 2020). Unintended consequences can follow – for example, in some markets like South Africa, a strict 30% local content quota on streaming video services has led to warnings that businesses would either cut the size of content catalogues or be forced to spread production budgets too thin in an effort to hit an artificial quotas, ultimately harming the reputation of local content around the world (Nefdt, 2021).

OECD Services Trade Restrictiveness Index (selected creative subsectors), 2021

Country	Average STI score
Japan	0.1222
Czech Republic	0.1308
Netherlands	0.1468
Germany	0.1586
Latvia	0.1642
Luxembourg	0.1668
United Kingdom	0.1694
Spain	0.1716
Chile	0.1734
Australia	0.1774
United States	0.1786
Lithuania	0.179
Ireland	0.181
Korea	0.1858
Costa Rica	0.186
Denmark	0.1884
New Zealand	0.1898
Portugal	0.1946
Sweden	0.1986
Canada	0.2086
France	0.2172
Finland	0.2268
Slovak Republic	0.2338
Estonia	0.2344
Hungary	0.2406
South Africa	0.2477
Greece	0.2474
Norway	0.2506
Austria	0.251
Viet Nam	0.2582
Slovenia	0.2616
Colombia	0.2628
Singapore	0.263
Belgium	0.2656
Malaysia	0.2676
Israel	0.2688
Switzerland	0.2804
Peru	0.2942
Poland	0.2962
Indonesia	0.2998
Italy	0.3088
Turkey	0.3142
Kazakhstan	0.3168
Mexico	0.3292
Brazil	0.3474
India	0.3554
Russia	0.3654
Iceland	0.3898
Thailand	0.3936
China	0.4142

This table presents average country service trade restrictiveness scores across five creative subsectors (architecture, broadcasting, digital, motion pictures, sound recording). Values range between zero and one. Complete openness to trade and investment gives a score of zero, while being completely closed to foreign services providers yields a score of one. Source: OECD (2022); author's calculations.

Number of country commitments in services linked to the creative economy



Under the General Agreement on Trade in Services (GATS), WTO members can undertake specific commitments on liberalisation of market access and national treatment in their national schedules. The level of commitments varies by sector. For example, tourism services (132 out of 139 WTO members' schedules) and financial services sectors (111 out of 139) are among the most committed sectors. By contrast, commitments are much more modest in the creative economy, notably services subsectors such as radio and television transmission services (9), radio and television services (18) and sound recording (18). Source: UNCTAD 2022).

Home bias, global markets and trade competitiveness

⚠ WHAT ARE SOME OF THE RISKS, UNCERTAINTIES AND TOPICS OF DEBATE RELATED TO THIS TREND? (CONTINUED)

Cultural differences between countries in terms of social values, historical perspective and context and language create demand frictions that may further depress trade. Using bilateral hyperlinks and website visits between countries as a proxy for cultural distance, Hellmanzik and Schmitz (2015) find that 1% increase in the level of bilateral hyperlinks from an importing to exporting country is associated with 0.45% increase in bilateral audiovisual imports. Home bias and the preference for products that are culturally similar helps explain why global content markets are often dominated by firms in countries with large domestic markets. Firms from larger countries serve their larger domestic market without any cultural penalty as well as supporting a certain amount of demand from culturally distant markets. Larger home markets also permit firms to benefit from scale economies in the production of creative goods, supporting a greater variety of high-quality outputs (Hanson and Xiang, 2009; Walls and McKenzie, 2012).

But home bias is not set in stone. Waldfogel (2018) finds that consumption patterns for music – one of the most popular and easily traded cultural products – converged between 2007 and 2015 with average country pairwise distance falling by roughly a third. Interestingly, this convergence was not around a US-heavy mix but reflected a more balanced repertoire across countries.

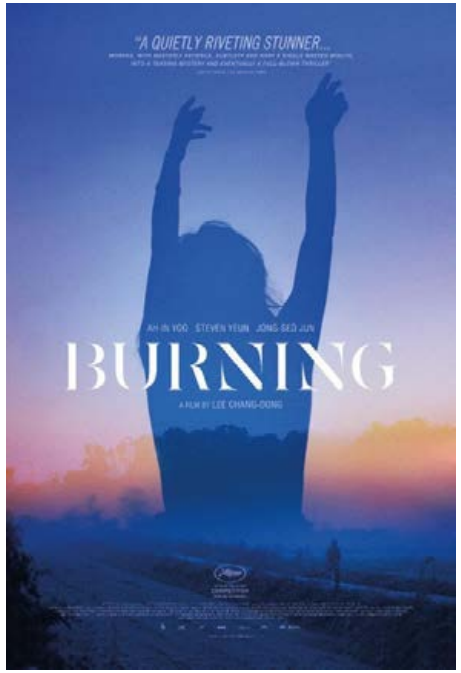
By contrast, Gomez-Herrera et al. (2014) highlight a growing preference for US music, though this is driven almost exclusively by new music (e.g. rap) rather than a general shift in taste towards US music (e.g. country music). More recent data from streaming services like Spotify point to an increased preference for local content, seemingly reversing earlier trends (Way et al., 2020).

These trends do not necessarily signal an unwinding of globalisation but rather the beginning of a new development phase whereby countries take global cultural forms, adapt them for local tastes and re-export them (Robertson, 2018). They are consistent with the way younger consumers construct eclectic identities by drawing on references and ideas from different places and eschewing strict or tribal categories (e.g. punk or rap). It is reflected in the rise of new hybrid genres like noirwave, associated with artists like South Africa's Petite Noir that combines African musical traditions and early 80s electro and post-punk (itself heavily influenced by dub) and cross-country musical collaborations such as Nigeria's Burna Boy work with UK pop stars like Chris Martin and Ed Sheeran. Supporting these trends, research finds a U-shaped relationship between cultural distance and consumption: the consumption of creative content is high not only among countries whose cultures are similar but also ones that are very different, mirroring the tug and pull between familiarity and novelty seeking that drives many aspects of consumption behaviour (Baek, 2014; Thompson, 2017).

⚠ WHAT ARE SOME OF THE RISKS, UNCERTAINTIES AND TOPICS OF DEBATE RELATED TO THIS TREND? (CONTINUED)

They also allow smaller countries to punch above their weight in global markets. A good example is the breakout success of *Capitani* – a drama set in a sleepy Luxembourg village and filmed entirely in Luxembourgish that is considered an endangered language by UNESCO. More striking is the case of South Korea, which with a population of 50m has become a force in music, cinema and MMPORG gaming. Bands like BTS and Blackpink have had no.1 hits on Billboard Hot 100 while *Parasite*, building on successes such as *Burning*, *The Handmaiden* and *Okja*, was the first foreign film to win Oscar for best picture in 2020. Netflix's hit series *Squid Game* has continued this run of success. The appeal of Korean cinema and TV is attributable to a tradition of filmmaking blending local culture with global entertainment and combining acerbic social and political commentary and violence alongside highly developed aesthetics and genre construction. It has been supported by the willingness to use co-productions and foreign partnerships and vertical integration to drive learning at scale (Parc and Messerlin, 2021). Interestingly, this more corporate-led approach contrasts with the global expansion and success of Japanese anime in the early 2000s that owed more to the efforts of individual entrepreneurs, bottom-up networks such as anime conventions and fan clubs and an emphasis on director – rather than studio-led productions (Daliot-Bul and Otmazgin, 2019). In both cases, however, government support appears to have played a modest role in success (Otmazgin, 2020).

Effects vary by content type. Barclays (2022) observes that 4 of the top 10 most searched TV shows globally and 3 of the top 10 songs in 2021 globally were non-English. This compares with five years earlier when only one TV show and no non-English musician featured in the top 10. On the other hand, Hollywood titles still account for the top 10 movie titles globally in terms of search interest, similar to trends 5 years ago. One reason for this difference is that Hollywood movies enjoy significant economies in production – the ability to spread activities with high fixed costs over higher volume of sales. Another possibility is that theatrical releases require more marginal economic and physical effort before consumption given the need to travel to the cinema and pay a premium for the experience, potentially leaving less scope for experimentation compared with streamed content (Aguiar and Waldfogel, 2017).



Film poster for Lee Chang-dong's Burning (2018)

2 Emerging middle class and the challenges to broad-based consumption

Trends shaping the future of the Creative Industries

A rapidly expanding middle class globally has driven growth in spending and consumption

WHAT IS THIS TREND?

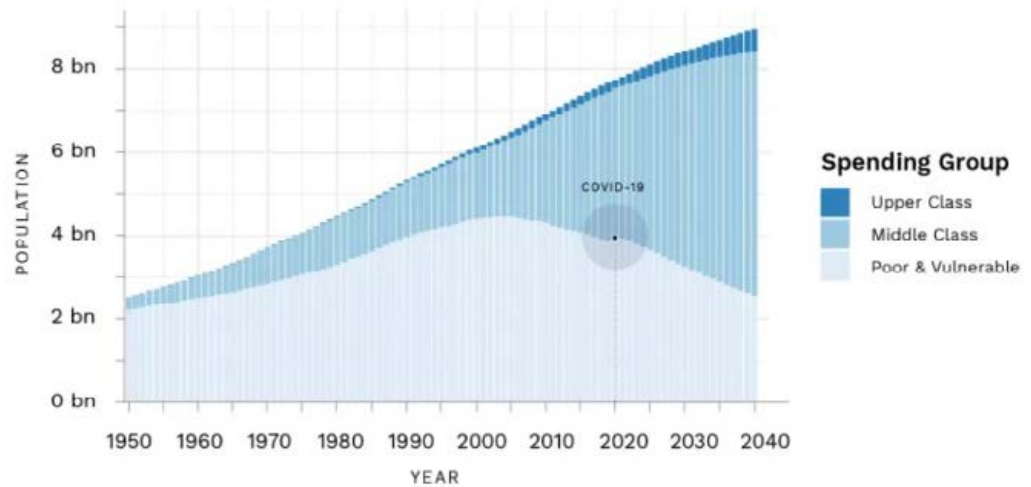
In the last twenty years, developing countries have been lifted by the rising tide of globalisation and shifting locus of economic activity and dynamism. They are transitioning from centres of labour and production to consumption-oriented economies, driven by a large new army of middle-class consumers. The middle class is now the largest spending group in the world. As a long-term structural shift, its growth was temporarily stalled but not derailed by the pandemic. By 2030, another 700mn people are expected to join the global middle class (4.8bn) totalling more than half of the world's total population. Middle class households will also account for an estimated $62tn in consumer spending – nearly 50% more than in 2020 (Brookings, 2021).

WHY DOES THIS TREND MATTER?

The growth of the aspiring middle class presents significant opportunities for the creative industries. Middle class entry is associated with rising disposable income and changes in expectations and aspirations. Middle class households tend to make economically based choices that span a combination of material consumption, leisure and enjoyment. They also tend to favour private property, saving for the future and maximising personal choices. These regularities mean that the middle-class consumption basket in India, for example, has more, rather than less, in common with that found in the US (Nasdaq, 2021).

Asia – in particular China – has been at the forefront of this growth. In 2019, only a third of the increase in global consumer spending came from the eurozone and the US combined. China delivered more than half the global growth in luxury spending between 2012-18. It has also emerged as the world's largest cinema box office market (=$7.3bn in 2021) capable of turning all but the biggest theatrical flops into profitable performers. The fantasy film – *Warcraft* – mustered only $47mn in the US but was boosted by its performance in China that accounted for half of its $433mn worldwide ticket sales.

Growth of global middle class population



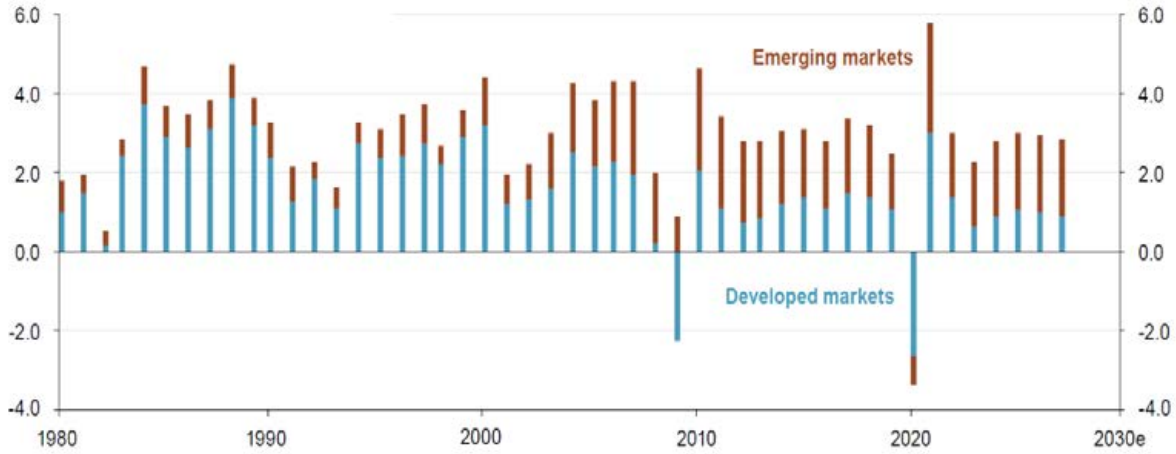
Notes: the middle class is defined as anyone earning $11-110 per day in 2011 PPP. Source: World Data Lab's MarketPro, 2021 update.

WHY DOES THIS TREND MATTER? (CONTINUED)

But this story goes well beyond countries like China and India. Consider fashion: women aged 15-30 spend >$7.6bn a day on fashion in the 20 largest emerging economies compared with $5.5bn a day for the same group in the 20 largest economies. Or music: Latin America and sub-Saharan Africa are currently the world's fastest-growing regions for recorded music revenues (IFPI, 2023). PWC (2022) forecasts that entertainment and media consumer spending will grow faster in developing countries than wealthy markets over the next five years, albeit from a lower base. Turkey is expected to lead the way with growth at 14.2% compounded annually with Argentina and Nigeria also boasting impressive CAGRs. More generally, Indonesia is projected to have the world's fourth-biggest middle class by 2030, overtaking Russia and Japan.

Trends still have a long way to run. It remains the case that per capita incomes in emerging markets are still below those in advanced economies. In particular, many countries have not yet moved into the income bracket where consumption of creative goods and services takes off rapidly. Goldman Sachs (2013), for instance, estimates the sweet spot for sophisticated durables and services such as ad spending and luxury cars kicks in at annual incomes of $25,000 per capita.

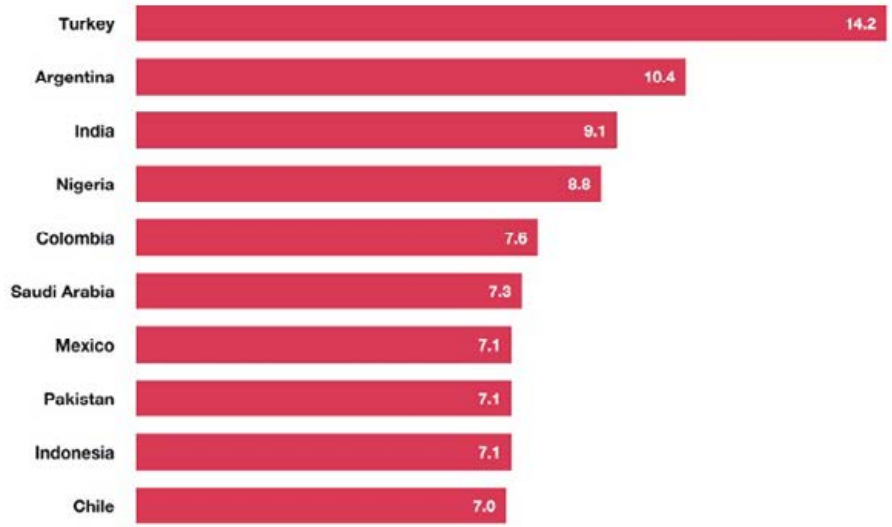
Contribution to global GDP growth, %



Source: HSBC (2023) based on IMF WEO.

The demand impact from demographics and spending preferences could be sizeable

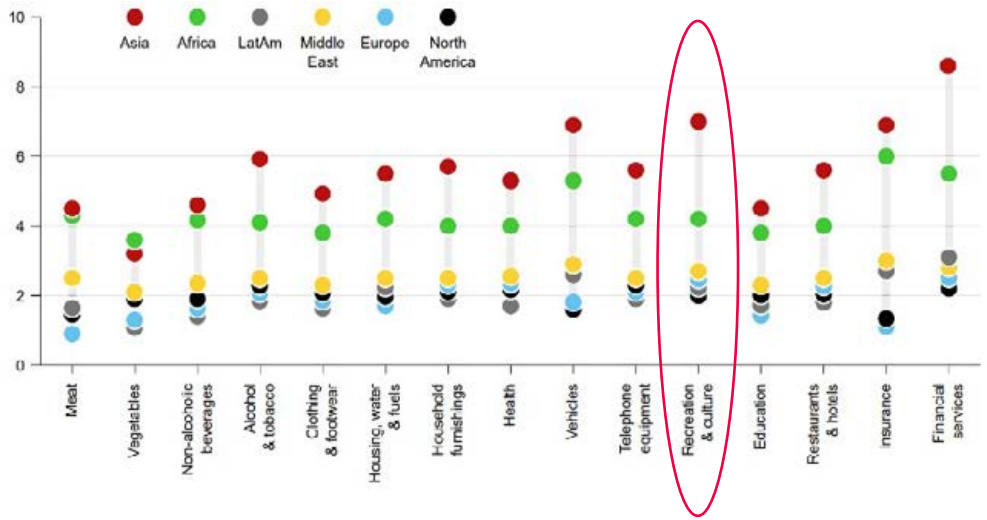
Top ten countries by consumer growth for entertainment and media categories, 2021–26, CAGR, %



Note: 2021 is the latest available data. 2022–2026 values are forecasts.
Source: PwC's Global Entertainment & Media Outlook 2022–2026, Omdia

Source: PWC (2022).

Estimated growth in real spending by category and region (%, 2030-40e)



Source: HSBC (2022).

Realising growth expectations necessary for broad-based consumption will not be straightforward

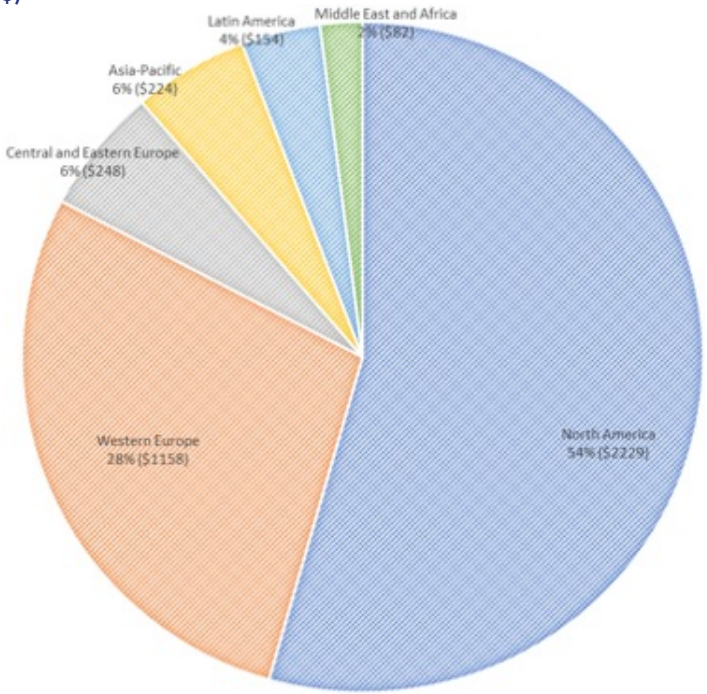
⚠ WHAT ARE SOME OF THE RISKS, UNCERTAINTIES AND TOPICS OF DEBATE RELATED TO THIS TREND?

Under the seemingly linear trend of middle-class growth lies substantial uncertainty. History is a reminder that extraordinarily rapid growth is rarely persistent – indeed there is only a weak association between a country's growth rate in a given decade and the next decade (Ho and Mauro, 2014). The difficulties of economic catch-up are underscored by the fact that of 101 middle-income economies in 1960, only 13 had become high income by 2008 reflecting the challenges of structural transformation and shifting economies from low-value-adding activities towards higher-value-adding activities based on innovation and institutional reform.

By implication, businesses may prefer to take the bird in the hand in developed markets since expectations of continued growth in fast-growing emerging markets may ultimately disappoint. This is particularly true regarding the US that is home to just 6% of global households and 4% of global population yet makes up 44% of global pay TV revenues and 37% of global music revenues. Entertainment also makes up a larger share of consumer spending in the US than other parts of the world. In part, this may reflect cultural differences and a stronger propensity to spend on entertainment. In part, it may reflect idiosyncratic differences in distribution and market structure in subsectors like pay TV in the US that enable companies to reap higher margins for goods and services that are less discretionary than commonly supposed (Barclays, 2023). More generally, the value of developed markets can be seen in higher average revenue per user (ARPU) levels (PWC, 2022).

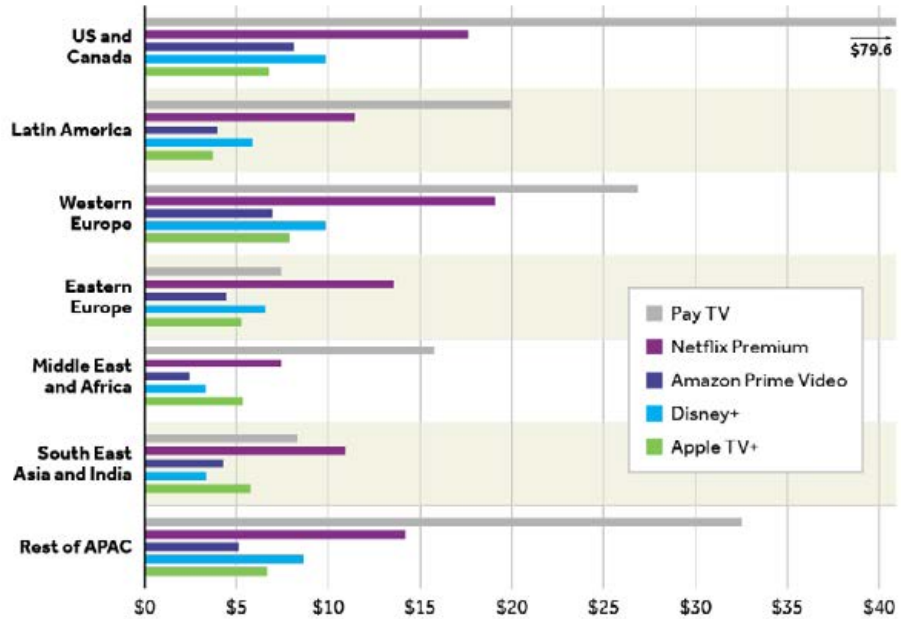
Emerging market and developing economies have been hit by multiple shocks in recent years. These range from the pandemic to energy and food insecurity to heavy indebtedness to elevated inflation. By 2025, developing countries are expected to be $12tn poorer than they would have been without the pandemic, based on their growth trajectories in 2017-2019 (UNCTAD, 2021). Risks are skewed to the downside: the IMF has cautioned that the global economy is facing years of slow growth, with medium-term prospects their weakest since 1990. The possibility of persistent inflation alongside sluggish growth has echoes of the 1970s. Then, interest rate increases by major advanced-economy central banks aimed at taming inflation were so sharp that they triggered financial crises in emerging market and developing economies, inaugurating a 'lost decade' in some of them. Further complicating matters, many have emerged from the pandemic with historically high debt-to-GDP ratios. Approximately, 15% of low-income countries are already in debt distress and an additional 45% are at high risk of debt distress. Among emerging markets, about 25% are at high risk and facing default-like borrowing spreads. This leaves very little room for fiscal support at a time when economies are seeking to build back better. Even China – the poster child for globalisation and a global middle class – is not immune to these pressures given unfavourable demographics, high leverage, an overextended property sector, creeping economic centralisation and declining productivity growth (Rosen, 2022). China's sluggish recovery from reopening, after draconian Covid-19 restrictions, is indicative of the deeper structural problems in its economy. Achieving sustainable long-term growth will require thorny decisions on questions such as how to boost consumption as a share of activity in an economy that is still overly dependent on support from investment (Pettis, 2022).

2021 Entertainment & Media spending per capita, by region (US$)



Notes: 2021 is the latest available data. 2022–2026 values are forecasts. Source: PWC (2022).

Pricing for TV and video streaming services by region ($) (2022)



Source: Barclays (2023).

⚠ WHAT ARE SOME OF THE RISKS, UNCERTAINTIES AND TOPICS OF DEBATE RELATED TO THIS TREND? (CONTINUED)

These challenges also have a regional dimension:

In Africa, workers have successfully moved out of low productivity activities such as agriculture into more modern sectors of economy; however productivity-growth within these sectors has been lacklustre, trailing even agriculture in some countries.

In Latin America, productivity gains within modern sectors have been tempered by weak allocation away from low productivity activities such as commodities. Periods of relatively high growth have actually coincided with workers moving from productive to less productive sectors (Diao et al., 2019).

The shine has come off tried-and-tested development strategies. Developing countries are today deindustrialising at significantly lower levels of income than other countries did in past, closing off a potent engine of growth due to the manufacturing sector's capacity to absorb unskilled labour and drive up productivity (Atolia et al., 2018). This is in large part due to automation technologies that some commentators believe are inappropriate for the developing world as they economise on the factors that are most abundant there, namely labour, particularly semi-skilled labour and risk exacerbating inequalities between North and South as well as within the developing world (Acemoglu and Johnson, 2023). This raises the question whether high-productivity services, including creative services can pick up the slack, notwithstanding the fact that they require a minimum threshold level of skills and technology and depend heavily on global demand. There are also question marks over whether creative services are capable of generating multipliers or positive spillovers for other tradable activity (Gutierrez-Posada et al., 2022).

The emerging market universe is diverse and defies a uniform narrative. A rising tide of globalisation may not lift all boats, as in the past. But there are pockets of opportunity, including in less touted markets that have benefited from strong fundamentals and implementation of reforms in the past decade (e.g. Rwanda, Kenya, Bolivia, Paraguay, Senegal and Tanzania).

Change in GDP, constant prices (%)

Notes: since 2010 growth in emerging markets has been on a downward trend. Indeed excluding China and India, growth in GDP per capita had been slower in emerging markets than developed ones. Source: IMF and FT (2022).

To compete in emerging markets, businesses will need to hone their understanding of local conditions and tastes and adapt their offerings accordingly

⚠ WHAT ARE SOME OF THE RISKS, UNCERTAINTIES AND TOPICS OF DEBATE RELATED TO THIS TREND? (CONTINUED)

Success requires a far from trivial adaptation of products and business models to local markets. Consider e-commerce where the needs of consumers can vary widely: in Japan shoppers prefer websites dense in images and text, eschewing the white space found on Western websites; in Mexico there is a culture of ordering products via mobile and then paying for them in cash at convenience stores; in New Zealand, 'Buy now, pay later' services have grown in popularity; and in low-income contexts, simple interfaces requiring limited device memory and processing power and offering enhanced offline interfaces have proven more successful (JPM, 2020). Market research and the use of data analytics tools can play a valuable role in uncovering and understanding these differences (Bakhshi et al., 2015).

Localisation is especially challenging for creative industries that deal in symbolic goods and services:

- Taking inspiration from local cultures may topple over into artistic appropriation, namely the adoption of elements of another culture without proper attribution, sensitivity or background understanding.
- The need to balance commercial interests, political sensitivities and the requirements of censors without stifling creative expression. This is not a new dilemma: when it was premiered in 1952, post–World War II West German audiences saw a different version of *Casablanca* than the rest of the world. But it has assumed greater significance in light of China's emergence as a major foreign market. In the film industry, studios have lobbied fiercely for their titles to be allowed entry under China's quota system, frequently making wholesale changes to content to satisfy censors unpredictable demands, inviting accusations that businesses are putting profit ahead of ethics and inspiring numerous satirical memes (Kokas, 2017; Schwartzel, 2022).
- Modifying goods and services and managing the associated complexity is costly. Economies of scale further militate against localisation unless other ways are found to integrate similarity and difference – for instance, by identifying clusters of similar consumers across markets.

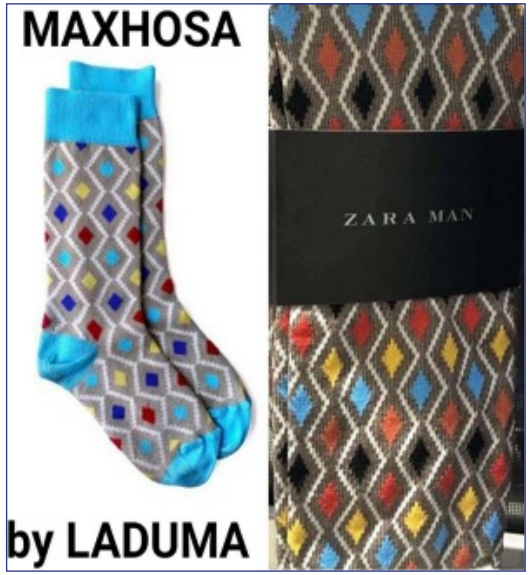
Netflix strategy is instructive of how businesses manage the trade-offs of localisation:

- In affluent markets with strong home bias (e.g. Japan), it has spent heavily on programming rights to local language content. Given difficulties in amortising content, it has shifted to coproductions that have the potential to appeal to international audiences.
- In competitive and culturally diverse markets (e.g. India), it has avoided licensing or producing homegrown content. Rather the focus is on pulling power of original content among English-speaking elites that are similar to cosmopolitan audiences elsewhere.
- In less affluent markets, there has been experimentation with mobile-only subscriptions. In Kenya, it has rolled out a free mobile plan, covering about a quarter of its content library. Netflix recently dropped its prices in more than 100 lower income markets (~5% of current user base), though it must balance the benefits of faster subscriber growth against the costs of lower average revenue per user (ARPU).
- In highly regulated markets (e.g. China), it has licensed original content to local platforms or not launched at all (Lobato, 2019).

⚠ WHAT ARE SOME OF THE RISKS, UNCERTAINTIES AND TOPICS OF DEBATE RELATED TO THIS TREND? (CONTINUED)

Foreign business face increasing competition from home grown players that have several embedded advantages, including consumer loyalty and lower costs. Market competition is often more intense in emerging markets than in home markets. For example, MGI (2018) finds only 20% of companies in Malaysia that reached the top quintile regarding economic-profit generation between 2001 and 2005 (all sectors) were still there a decade later compared with 62% of incumbents in high-income economies.

Mid-market brands have acutely felt the squeeze from local competition but others have not been unscathed (FT, 2020). Over the past decade, Hollywood blockbusters have gone from playing first fiddle in China's box office top 10 to having to fight for a place alongside local productions – indeed 2020 marked the first time that all of the country's top 10 grossing films were made by Chinese studios. If this trend continues after the pandemic, it could put pressure on the business model of Hollywood studios that have relied on China to recoup blockbusters budgets and potentially result in a more level playing field with more moderately budgeted productions. At the same time, China's ability to fund larger productions has benefited foreign talent. Consider London-based DNEG's visual effects work on *The Eight Hundred* that was the world's highest grossing movie of 2020 and the first Chinese movie shot entirely on Imax cameras. However, knowledge transfer has not as yet translated into improved external competitiveness and the ability to challenge Hollywood and other established centres of film and TV production. There are nonetheless signs that this situation is beginning to change and emerging market winners are seizing opportunities abroad. A good example is Poland's CD Projekt, the games maker behind the smash hit *Witcher* franchise and *Cyberpunk 2077* that has go Europe's second most valuable gaming company, narrowly behind French giant Ubisoft.



Left: Maxhosa by Laduma and men's socks from Zara. The clothing giant was forced to remove the items from stores after ceding claims that it copied designs of knitwear designer Laduma Ngxokolo referencing traditional beadworks by South Africa's Xhosa people.

Right: cover of *The Three Body Problem* (三体), the Chinese sci-fi novel written by Liu Cixin. It won the 2015 Hugo Award, one of the genre's most prestigious honours long dominated by American and British authors. The wildly imaginative book and its two sequels have sold at least 8 million copies worldwide. A Chinese TV adaptation of the book debuted in early 2023 and it is also being adapted as a big-budget Netflix series by the creators of *Game of Thrones*. Interestingly, Liu Cixin recommends that Chinese sci-fi fans, if possible, read the English translation rather than the original Chinese version. This is due to the fact that the novel's natural timeline was changed to avoid controversy with the government censors. Specifically, scenes of political violence and oppression during the Cultural Revolution were buried in the middle of the Chinese version despite the fact that they are critical to understanding the motivations of the main protagonist, Ye Wenjie (Alter, 2019).

The monetisation potential of creative industries is still hindered by piracy and informality

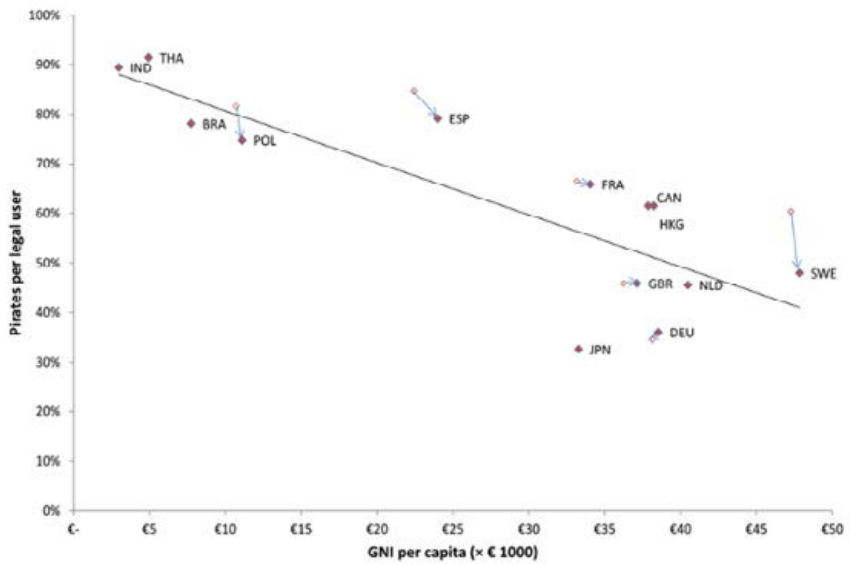
⚠ WHAT ARE SOME OF THE RISKS, UNCERTAINTIES AND TOPICS OF DEBATE RELATED TO THIS TREND? (CONTINUED)

Intangible assets play an instrumental role in rewarding creatives but they are also at risk as the potential for piracy has expanded in recent years due to technological change, globalisation and governance gaps across countries. The evidence makes clear that countries with lower per capita incomes have higher piracy rates, highlighting the challenges faced by rights-holders in developing countries. This relationship, however, appears to weaken above a certain income level. For example, Spain, France and Canada have more pirates per legal user than predicted by income while Japan and Germany have fewer pirates (University of Amsterdam, 2018).

There is a growing consensus that piracy is harmful to creative activity, though the effect size varies by content type and other factors. The costs of piracy fall most heavily on foreign content providers and multinational enterprises but creatives in developing countries are not unaffected. In part, it reflects the inadequacies of existing international copyright laws to protect traditional cultural expressions. It is also, in part, a recognition of the importance of copyright-based industries to these economies. In the Philippines, Malaysia, and Mexico, copyright-based industries actually account for a larger share of employment than in developed economies (Fink et al., 2016).

Numerous studies bear out the costs of piracy. In India, the advent of VCR-based piracy in 1980s and 1990s resulted in a significant decrease in the number of movies made and quality as measured by IMDb ratings (Telang and Waldfogel, 2018). On the flipside, Li et al. (2021) find that reduction in IP infringement on digital publishing platforms in China is associated with an increase in the creative productivity of writers. To identify causality, the study exploits an exogenous event – the termination of free personal storage service and search function by a leading Chinese cloud storage that raised the costs of piracy. Evidence from West Africa music and film industry shows how piracy has depressed artists incomes, though it also points to other barriers that render creative activity unprofitable such as ineffective collection societies and tax policies (Penna et al., 2004; Lawal-Arowolo, 2015).

Pirates per legal content user vs. per capita income (in constant prices) (2014 vs. 2017)



Source: University of Amsterdam (2018).

⚠ WHAT ARE SOME OF THE RISKS, UNCERTAINTIES AND TOPICS OF DEBATE RELATED TO THIS TREND? (CONTINUED)

The proliferation of streaming services has had a deterrent effect on piracy, though their impact should not be overstated. Experimental evidence from De Matos et al. (2017) finds that to curb piracy, services, at a minimum, need to offer content much earlier and at much lower prices than current industry practice. Parts of the industry understand these trade-offs: Disney recently warned the French authorities that it would send its biggest films straight to streaming unless the windowing regime was reformed. Under current rules, films that come out in the cinema need to wait between 15 and 36 months before they can be streamed, leading to fears that this delay will increase the risk for piracy.

Perceptions of price fairness, not necessarily the level of prices themselves, are linked to piracy. Kukla-Gryz et al. (2021) find that the experience of overpaying is associated with a higher frequency of digital piracy and attribute the growing success of subscriptions plans over prior per-unit pricing to the fact that they are viewed as fairer. On the other hand, users may become anchored to a particular price or pricing model, reducing the scope for businesses to change direction or strategy in the future.

Regulators have adopted a range of enforcement measures to tackle piracy – some penalise illegal consumption, others restrict the supply of pirated goods. There is evidence that they have induced people to switch from piracy to legitimate purchasing, albeit with limitations. For example, Danaher et al. (2014) find that issuing infringement notices causes a 20%-25% increase in music sales but these effects diminish after 6 months. The blocking of piracy sites can also be effective. Danaher et al. (2019) find that the shutdown of Megaupload.com boost sales of digital movies by 6.5%-8.5% but only when several sites are blocked simultaneously. Antipiracy measures also have unintended consequences that need to be taken into account. For example, news coverage accompanying enforcement efforts may encourage piracy by highlighting alternative websites or the low likelihood of prosecution that users were previously unaware of. The piracy market may also become more fragmented after intervention, making future enforcement efforts potentially more costly and less effective (Augiar et al., 2018).

Illustrations of demand-side and supply-side enforcement

Demand side	Supply side
New Zealand's "three strikes" law against illegal downloaders	Megaupload.com shutdown and prosecution of Kim Dotcom for online piracy
Copyright Alert System or CAS (also called the "six strikes" program) in the United States	China shutting down two major sites involved in online piracy
Canipre, a Canadian intellectual property rights company, tracking down illegal downloaders	French government penalizing "sites that profit from pirated material"
Mass scanning of IP addresses in Australia and the United States	New antipiracy law in Russia to tackle pirate sites
Enactment of the French HADOPI law (Creation and Internet law)	Founder of illegal movie streaming site sentenced to 4.5 years in jail, $4.7 million in fines
Boston University graduate student fined $675,000 for illegally downloading 30 songs	Google voluntarily playing copyright cop, suppressing violators in search results
Minnesota woman fined $220,000 for illegally downloading 24 songs	Google dropping Pirate Bay from autocomplete results
Enactment of Japan's new law punishing illegal downloaders to a jail term of up to two years	Stop Online Piracy Act (SOPA) and Protect IP Act (PIPA) of 2012
Several Canadian firms and one school division fined $270,000 in piracy-related damages	Combating Online Infringements and Counterfeits Act (COICA) of 2010
Random audits in South Korea for software piracy at companies, universities, and government agencies	"Operation in Our Sites" initiative in the United States resulting in the seizure of 125 websites

Source: Dey et al. (2018).

Demographic change

Trends shaping the future of the Creative Industries

1 Challenges of an ageing population

Trends shaping the future of the Creative Industries

Demographic change: a looming liability or potential dividend?

WHAT IS THIS TREND?

The world's population has tripled since 1950, from 2.6 billion to 7.8 billion people. Demographics are bifurcated between advanced economies that are grappling with the challenge of aging workforces and parts of the Global South – the Middle East and South Asia, alongside much of Africa – that have young, fast-growing workforces. The dilemma is that much of the world's capital and productive assets are concentrated in places where the workforce is shrinking.

In many parts of the world, population ageing is the 21st century's overriding demographic trend. For the first time in history there are more people over 65 than under 5 reflecting the collapse in fertility and increased longevity. By 2050, the number of persons aged 65+ will more than double to 1.5bn, accounting for 20% of the world's population with those 80+ growing even more quickly. The outlook is particularly stark for China where the peak in working age population has come and gone and the country is on track to contract at an annual rate of nearly 0.5% in the coming decades. This would make China the first large country to get old before it gets rich.

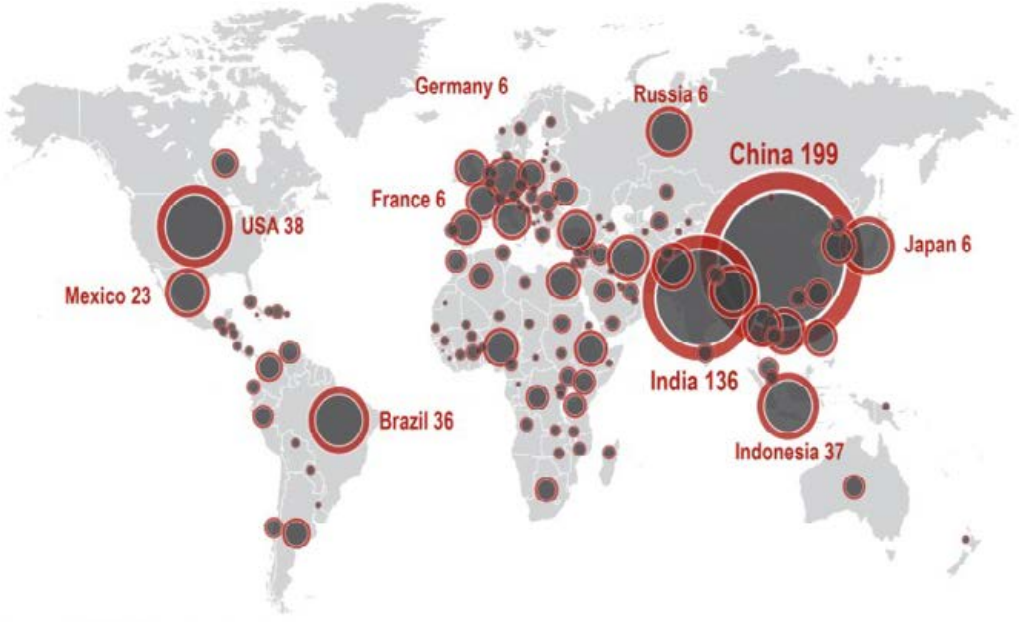
WHY DOES THIS TREND MATTER?

A rising old-age dependency ratio – the number of elderly people as a share of those of working age – will put a strain on economic growth and public spending. MGI (2015) predicts that GDP growth and per capita income growth could fall by 40% and 19% in G20 group over the next 50 years due to weaker labour force growth. To offset this projected decline, productivity growth will need to grow 80% faster on current trends. Accompanying reductions in income could lead individuals to cut back expenditure on discretionary goods and services such as recreation. At the same time, rising pressures on government budgets to fund health and retirement programmes could squeeze public goods such as education and culture (De Mello et al., 2016; OECD, 2020). This has implications for creative SMEs that are strongly linked to public money through a mix of co-funding, sponsorship and volunteering (Pratt and Hutton, 2013). Others draw a link between the shrinking pool of labour and higher inflation (Goodhart and Pradhan, 2020).

Timeline of demographic shifts, 1990-2050e

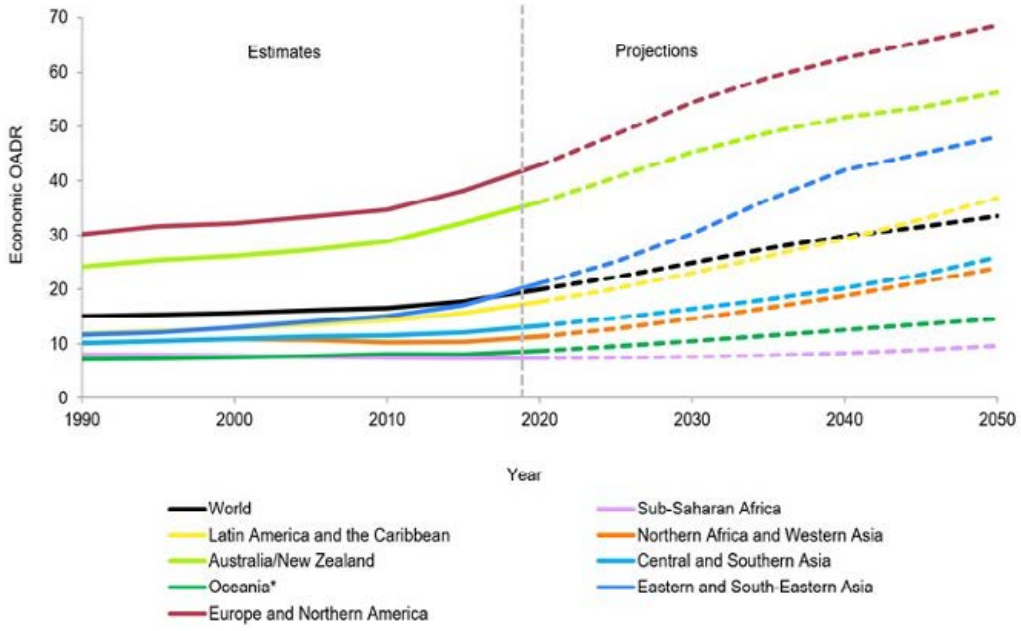
Source: Leatherby (2023).

Increase in people aged over 65 years from 2015-2050 (mn)



Source: UN DESA, Mapping World

Estimated and projected economic old-age dependency ratios by region, 1990-2050



Source: UN (2019).

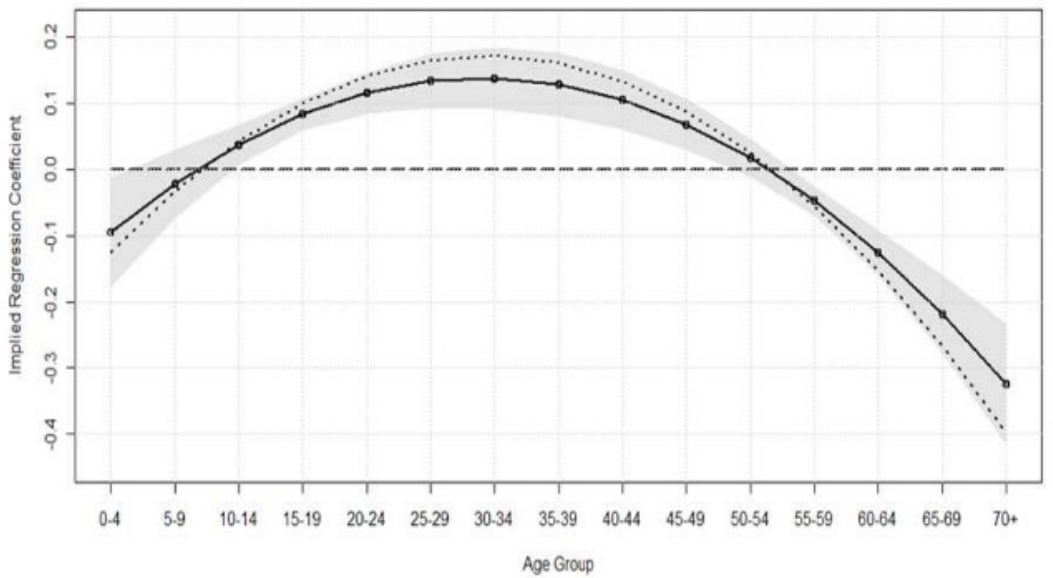
WHY DOES THIS TREND MATTER? (CONTINUED)

Employers currently reporting skills shortages or mismatches may find the situation become even more challenging. In the UK, it is estimated that between 2017 and 2027 the need to replace workers who have left the labour market ('replacement demand') will be over 11 times larger than expansion demand and the structural growth in occupational employment. For culture, media and sports occupations, there is projected to be a net requirement of over 330,000 new job openings with replacement demand accounting for 280,000 – or 84% – of these openings. Relatively speaking, creative subsectors will be less impacted by an ageing population than other parts of the economy. This partly reflects the age range of such organisations and the fact that they employ fewer over-50s than other parts of the economy. On the other hand, the perception that creative industries are a young person's game and their high reliance on the self-employed workforce that is increasingly made up of over-50s raises questions whether human capital is being properly harnessed.

WHAT ARE SOME OF THE RISKS, UNCERTAINTIES AND TOPICS OF DEBATE RELATED TO THIS TREND?

Demography is not destiny and policymakers and businesses can take steps to mitigate the negative effects of an ageing population. This includes a fundamental rethink of life trajectories. Gratton and Scott (2017) talk of a '100-year life', equating increased longevity with being younger for longer rather than older for longer. They argue that the traditional three-phase life – education, employment, retirement – should be replaced by a series of shorter and more fluid stages, a mix of traditional working patterns, entrepreneurship, further education, concurrent part-time roles and so on. Helping people navigate these transitions is a major policy challenge, especially as lifelong learning has long been undervalued. More also needs to be done to boost productivity growth, including automation, increase labour supply from women and immigrants, encourage savings during working years and put pension systems on a surer footing. It is striking that the global female labour force participation rate has remained virtually unchanged over the last three decades with a 25 percentage point gap, standing at just under 47% compared to 72% for men. The Middle East & North Africa region has the highest gap at 51.5% while North America has the lowest at 11% (JPM, 2023).

GDP growth and demographic shares



The figure plots the implied coefficient linking the size of each five-year demographic age cohort in the population as an independent variable, with the corresponding growth in GDP for the concurrent five-year span as the dependent variable along with 90 percent two-sided confidence intervals (shaded areas). It shows a negative link for the first few age cohorts and a stronger negative link after age 60. Source: Arnott and Chaves (2012).

2 Silver economy and the creative industries

Trends shaping the future of the Creative Industries

How an ageing population spends its disposable income will have significant implications for creative industries

WHAT IS THIS TREND?

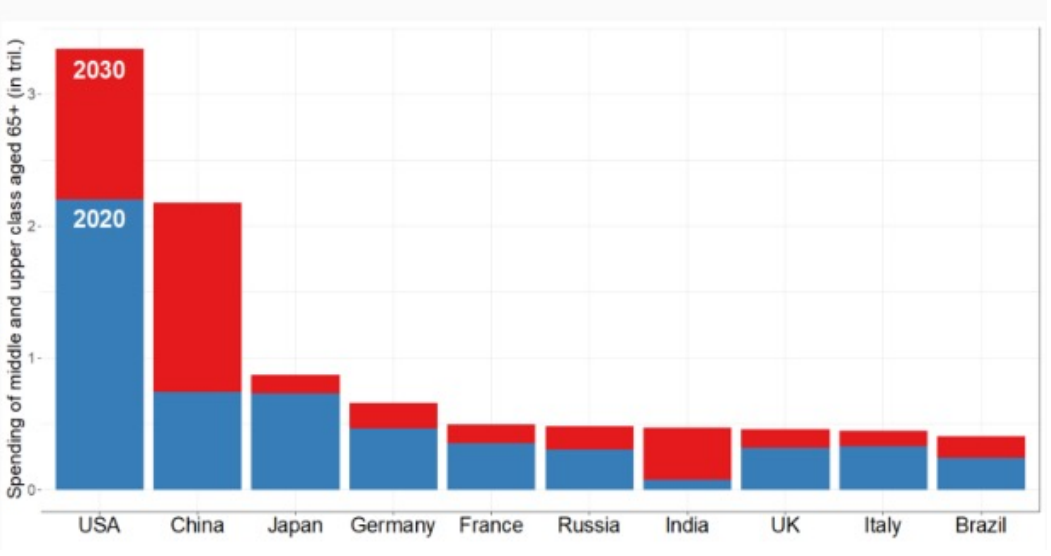
The Silver Economy meeting the needs of older consumers is growing in importance. The 60-plus segment is expected to represent nearly 60% of consumption growth in Europe and Asia from 2015 to 2030. This segment not only has the money after riding the housing market and stock market over the long term but it has also have the time to do things. For example, in the US, baby boomers and older individuals had accumulated a net worth of around $35tn – or 57% of US GDP by the end of 2020.

WHY DOES THIS TREND MATTER?

The Silver Economy's reach across a myriad of sectors generates multiple opportunities for creative businesses.

Healthcare is expected to benefit in particular. The incidence of many chronic diseases – diabetes, heart disease, cancer and dementia – increases with age, which is why a larger elderly population is tied to a disproportionate rise in healthcare expenditure both private and public. These diseases also represent a substantial economic burden – according to some estimates they will cost global economy $47tn in lost output between 2011 and 2030 (WEF/HSPS, 2011). Against this backdrop, there is a growing recognition that leveraging creative activities like design can make healthcare delivery more efficient and empathetic. Human-centred design, drawing on collective idea generation, rapid prototyping and continuous testing, has been applied with success in healthcare settings. For example, the fashion industry is reimagining ways in which clothing – PICC line covers, stroke rehabilitation garments and post-mastectomy lingerie – can support the dignity and comfort of patients while optimising the treatment process. In many respects, the importance of design goes beyond improving the layout of healthcare premises and creating more ergonomic medical devices. It also addresses the very bedrock of medical practices – whether it is improving the process of obtaining informed consent or building awareness of treatments that has historically contributed to the perpetuation of health inequalities (Ku and Lupton, 2019). Putting users at the centre of problem solving – understanding not only what users want but also why they truly want it – is now central to many value creation strategies (McKinsey, 2023).

Top 10 silver economy markets in 2030



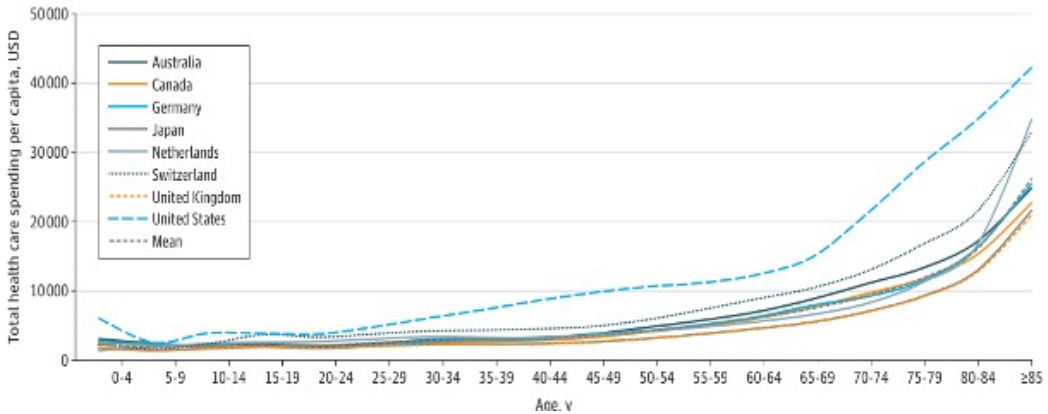
Source: Brookings (2021).

WHY DOES THIS TREND MATTER? (CONTINUED)

There is a growing recognition of the role that arts and culture play in promoting wellbeing and preventative health. Numerous studies from around the world posit a tangible link between arts-based interventions and improvement in mental and physical health outcomes (Fancourt and Finn, 2019). These studies cover not only less serious conditions (e.g. normal ageing and irritable bowel syndrome) but also longer lasting chronic conditions (e.g. fibromyalgia). Some studies highlight stimulative effect of arts experiences on regenerative and stress hormones such as testosterone, DHEA-s and cortisol that impact health in a broad sense (Theorell, 2021). At the same time, many of these interventions are not readily scalable, implementable and cost-effective. To this end, King's College London and UCL launched the world's largest ever study (SHAPER) into the impact and scalability of arts interventions in 2019 – trialling whether interventions such as singing groups for postnatal depression, dance classes for people with Parkinson's and movement and music sessions for stroke patients can work in a larger patient population (Estevao et al., 2021). A similar programme has been initiated by the WHO/Europe and the Nordic Culture Fund (WHO, 2021). Interest in these interventions are driven by frustration with conventional approaches to deal with ailments such as neurodegenerative disease. Issues such as obesity, diabetes, anxiety and insomnia that rose to prominence during the pandemic has added urgency to efforts (Senthilingam, 2021). The World Obesity Federation (2023) predicts that the majority of the global population (51%, or over 4bn people) will be living with either overweight or obesity by 2035 if current trends persist. Failure to improve prevention and treatment could reduce the global economy by over US$4tn a year by 2035 – or nearly 3% of global GDP that is comparable with the effects of the Covid-19 pandemic. In the US, adult obesity rates have doubled in the past 20 years and could reach 50% by 2040; yet only 10% of obese patients are treated by doctors, highlighting the potential for alternative interventions to improve outcomes.

The development of an age-friendly built environment is another growing area of interest for design and architecture sectors. Opportunities range from modular housing that can be reconfigured over the life cycle as individual needs and circumstances change to supporting ageing-in-place that can help unlock spare capacity in the wider housing stock to an entire reconceptualisation of the spaces, services and infrastructure that form the backbone of our cities (Arup, 2019).

Per Capita Health Care Spending by Age Group in 8 High-Income Countries in 2015



Source: Papanicolas et al. (2020)

Consumption of creative goods and services is no longer the preserve of the young

WHY DOES THIS TREND MATTER? (CONTINUED)

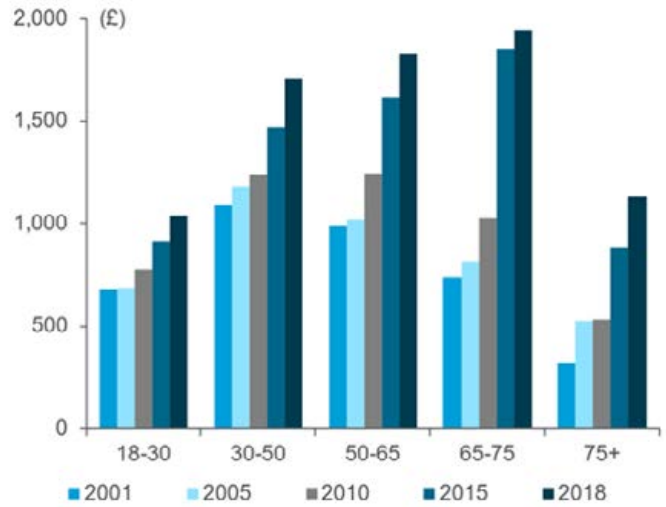
Over-50s are a major source of demand for recreation and culture – or so-called experiences. Media reports suggest that millennials are drivers of experiential trends, but data highlights the outsized role of older generations. In the UK and US, baby boomers (born between 1946 and 1964) spend around twice as much as millennials (born between 1981 and 1995) on experiences in absolute terms and almost 50% more of their available income in relative terms. This stands in contrast to emerging markets where Millennials and Generation X (born 1965-80) have been main drivers of experiential commerce by virtue of large cohort size.

WHAT ARE SOME OF THE RISKS, UNCERTAINTIES AND TOPICS OF DEBATE RELATED TO THIS TREND?

Businesses offering services to the healthcare sector tend to operate in highly regulated environments where services are provided to state entities, making them difficult to navigate.

Older people remain undervalued as consumers of products and services. All too often, they are ignored or portrayed unflatteringly by advertisers and marketers. Thus, a striking 96% of Britons over the age of fifty do not believe advertising is aimed at them (Guillen, 2020).

UK Experiential Commerce Spend Per Year (Recreational Equipment, Games & Software, Pets & Horticulture, Recreational Services, Package Holidays, Accommodation Services), £, 2001-2018



Source: ONS

Source: Citi (2020).

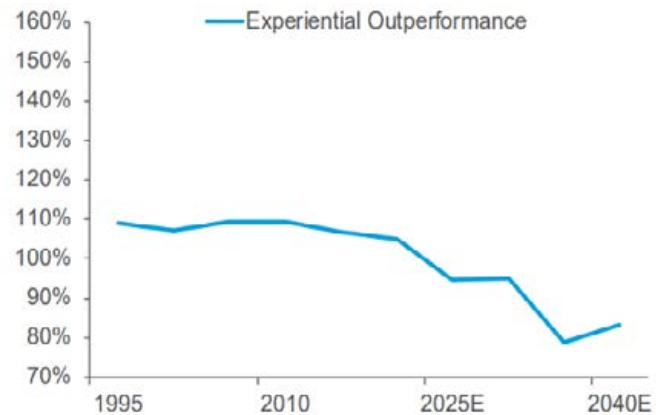
⚠ WHAT ARE SOME OF THE RISKS, UNCERTAINTIES AND TOPICS OF DEBATE RELATED TO THIS TREND? (CONTINUED)

An informed understanding of experiential consumption requires a granular approach, both in mapping needs of different demographic groups and in deciding on subsequent action. Within the experiential category, older consumers appear to spend their money differently. Possible explanations include:

- **Taste freeze?** One hypothesis is that older people stop keeping up with popular fashions. Spotify usage shows 25-34 year-old listeners have most artists in active rotation but music tastes mature during this period and determine which artists they listen to in later life (see overleaf). Accordingly, it finds only a 35% artist overlap between 13 year-olds and 64 year-olds. Evidence is mixed for other artforms. Evidence is mixed for other artforms, highlighting the role of other personality traits besides age in explaining novelty seeking (Holbrook and Schindler, 1989; Ferwerda et al., 2017).
- **Compensation effects** suggest that the working age population is more likely to consume passive entertainment as it prefers to unwind after work and take a break from making decisions. By contrast younger and older people prefer more active forms of entertainment that offer opportunities for to experience feelings of agency and competence that may not be available in their daily environments or routines (Bucher, 2017). Poor health is the obvious exception that will limit some older people to passive leisure activities (Ferranna et al., 2022).
- **Positional concerns**. Consumption often embodies status-seeking behaviour (Walasek et al., 2017). Some of these motivations appear at quite early age. For example children aged 10 (5th grade) get the most gratification from video games that involve challenge and fantasy while children aged 16-17 (11th grade) are most motivated by competing against one another (Greenberg et al., 2010). However, there is evidence that older people are less concerned with competitive goals and instead focus on personal meaning (Carpenter and Yoon, 2011).

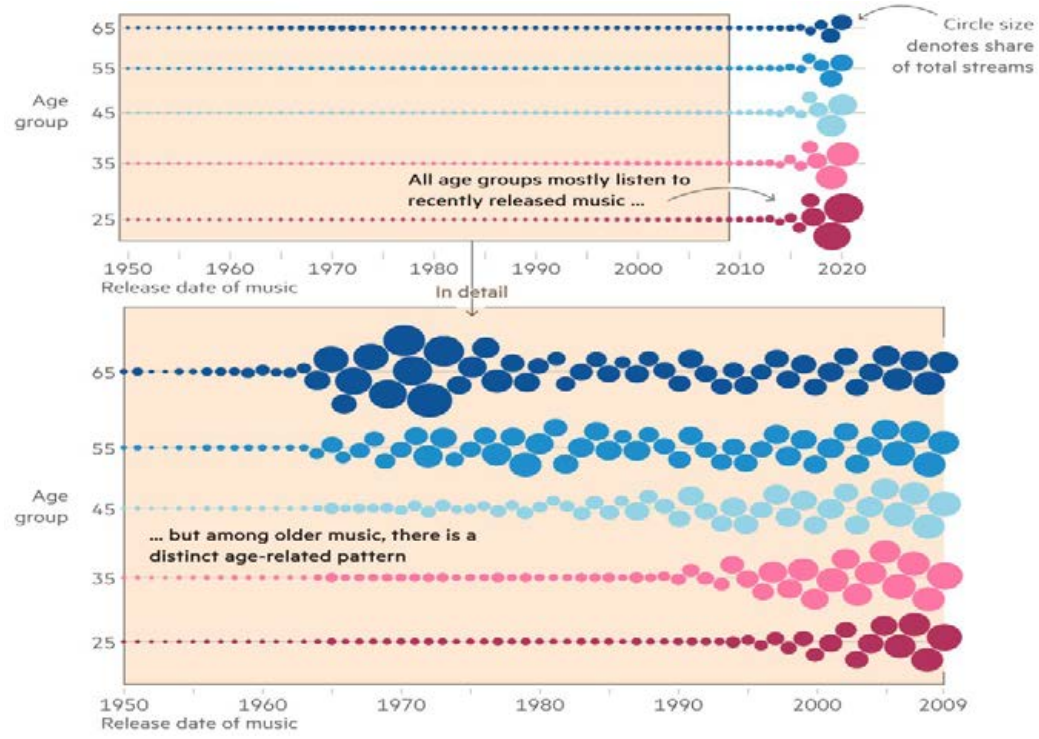
Demographics could turn from a tailwind to a headwind for spending on creative goods and services. Citi (2020) predicts a relative recession in 'experiential commerce' by 2030 compared with overall consumer spend as people currently in the high spending 55-75 age bracket move into 75+ age bracket which is when people reduce spending on leisure due to health issues. This is especially true in regions such as Asia where welfare systems and public transfers supporting old-age consumption are less developed. However, this scenario nonetheless rests on two questionable assumptions. First, it assumes that older groups behave in line with historical trends even though many are living healthily for longer and will continue to work. Second, it assumes that younger cohorts wrestling with financial commitments such as childcare, education and housing costs will be unable to support these trends, notwithstanding the fact that they are in line to inherit substantial assets from their parents, boosting their spending power.

Differential in U.S. Experiential Commerce Spend Growth Relative to Overall Consumer Spend Growth that is Driven by Demographics



Source: Citi (2020).

Music streamed on Spotify by age group and release date of music



Source: Spotify and FT (2020)

3 Demographic and creative dividend for developing countries?

Trends shaping the future of the Creative Industries

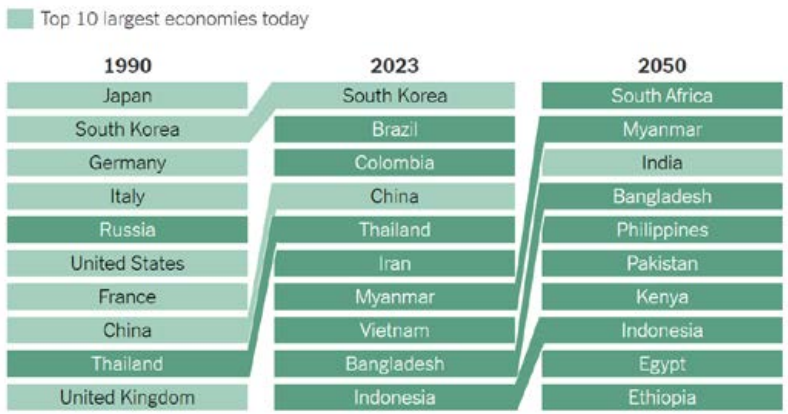
WHAT IS THIS TREND?

Youth populations are reaching unprecedented proportions in parts of developing world. In Africa, roughly 60% of population is under the age of 25, and the median age is around 20. In Asia and South America, by contrast, the median age is 32 while in Europe and North America it is closer to 40. By 2030, South Asia and Africa will become the largest regions in terms of population size, accounting for roughly 50% of the world's total population. Sub-Saharan Africa is projected to become the world's most populous region in the late 2060s and make up 33% of the global population by the end of the century (UN, 2022).

WHY DOES THIS TREND MATTER?

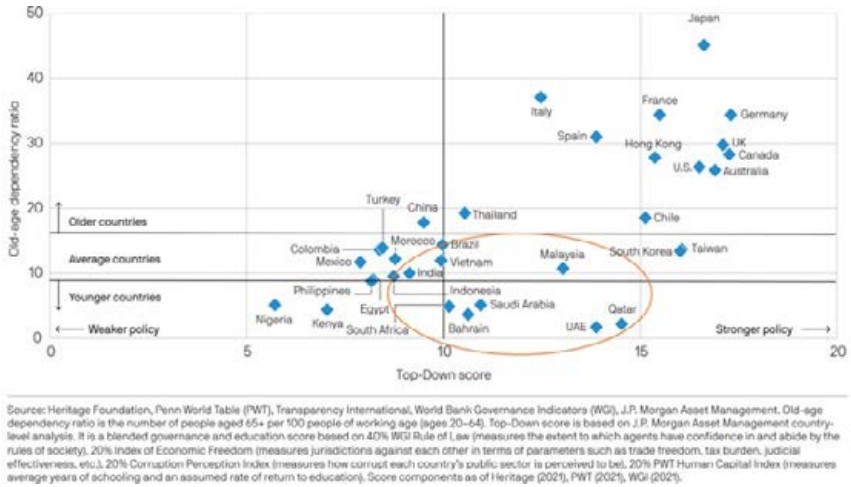
An economy with a rising proportion of young and working age people can deliver higher economic growth – a 'demographic dividend'. Developing countries have seen a entrepreneurship boom spanning the digital and creative industries, lifted by large and youthful populations (Gachara, 2020). Notably, sub-Saharan Africa has the highest rate of entrepreneurship in the world, with approximately 42% of the non-agricultural labour force classified as self-employed or employers. By contrast, economies that fail to make the proper investments to harness the energies of a growing working-age population could experience growing social, political and economic instability (Mampilly, 2021).

Largest working-age share of population



Notes: Graphic includes countries with at least 50 million people in 2023. Largest economies are determined by gross domestic product. Source: Leatherby (2023).

Institutional framework score vs. demographics (old-age dependency ratio, % of population)



Source: JP Morgan (2022).

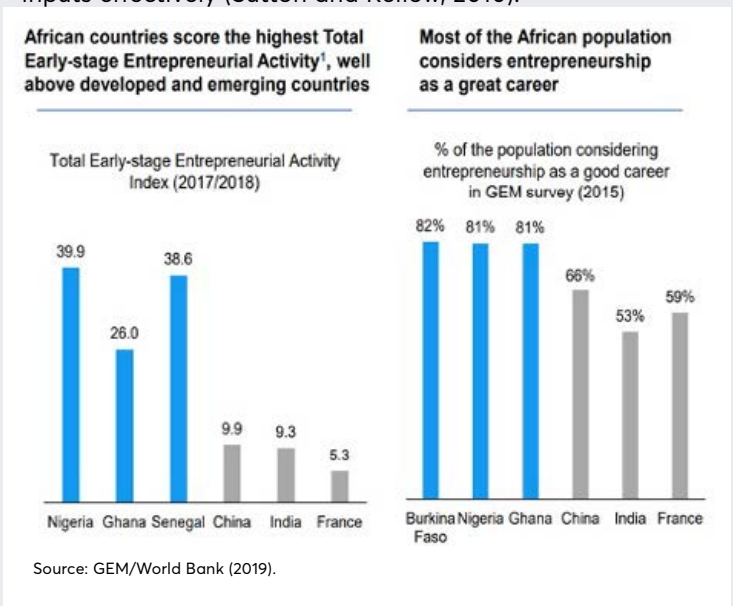
Source: Heritage Foundation, Penn World Table (PWT), Transparency International, World Bank Governance Indicators (WGI), J.P. Morgan Asset Management. Old-age dependency ratio is the number of people aged 65+ per 100 people of working age (ages 20–64). Top-Down score is based on J.P. Morgan Asset Management country-level analysis. It is a blended governance and education score based on 40% WGI Rule of Law (measures the extent to which agents have confidence in and abide by the rules of society), 20% Index of Economic Freedom (measures jurisdictions against each other in terms of parameters such as trade freedom, tax burden, judicial effectiveness, etc.), 20% Corruption Perception Index (measures how corrupt each country's public sector is perceived to be), 20% PWT Human Capital Index (measures average years of schooling and an assumed rate of return to education). Score components as of Heritage (2021), PWT (2021), WGI (2021).

⚠ WHAT ARE SOME OF THE RISKS, UNCERTAINTIES AND TOPICS OF DEBATE RELATED TO THIS TREND?

An interesting question is whether a younger workforce is also more innovative. A body of research shows that younger people are cognitively sharper, less distracted by externalities responsibilities and less beholden to established practice. Jones et al. (2014) find that scientific or technological breakthroughs peak when scientists are in their late 30s or 40s. However there appear to be systematic differences across fields, with creativity tending to peak earlier in abstract fields such as physics and later in fields with greater context and experience such as history. Similar patterns are reproduced in the arts. Galenson (2008) argues that creativity can be divided into two types: conceptual and experimental. For example, conceptual innovators such as Picasso, Warhol and Duchamp matured rapidly and peaked early in their lives. By contrast, experimental artists such as Mondrian, Kandinsky and Pollock who focused on a single problem for an entire career and honed their craft through trial-and-error developed slowly and made their greatest contributions at older ages.

The age structure of the labour force may also influence innovation and entrepreneurship rates. Studies find that younger labour markets encourage firm creation and growth and that firms with a younger investor base have lower dividend pay-outs to shareholders (Becker et al., 2011; Ouimet and Zarutskie, 2014). By contrast, having too many older workers occupy key positions in firms and society may block younger workers from acquiring relevant business skills. Liang et al. (2014) find one standard deviation lower median age is associated with 2.5 percentage point higher country rate of entrepreneurship.

Despite potential advantages, youth may also be a barrier to entrepreneurial activity in some circumstances. Azoulay et al. (2020) observe that mean age at founding for the 1-in-1,000 fastest growing new ventures in the US is 45 (see chart on next page). One explanation is that successful entrepreneurship depends not only on raw creativity but also on resources such as human, financial and social capital that tend to accumulate with age. For example, many leading firms in Africa originally started as trading companies – an experience that gives entrepreneurs a deeper understanding of the local market and domestic and international supply chains, allowing them to better identify profitable opportunities and source inputs effectively (Sutton and Kellow, 2010).



Source: GEM/World Bank (2019).

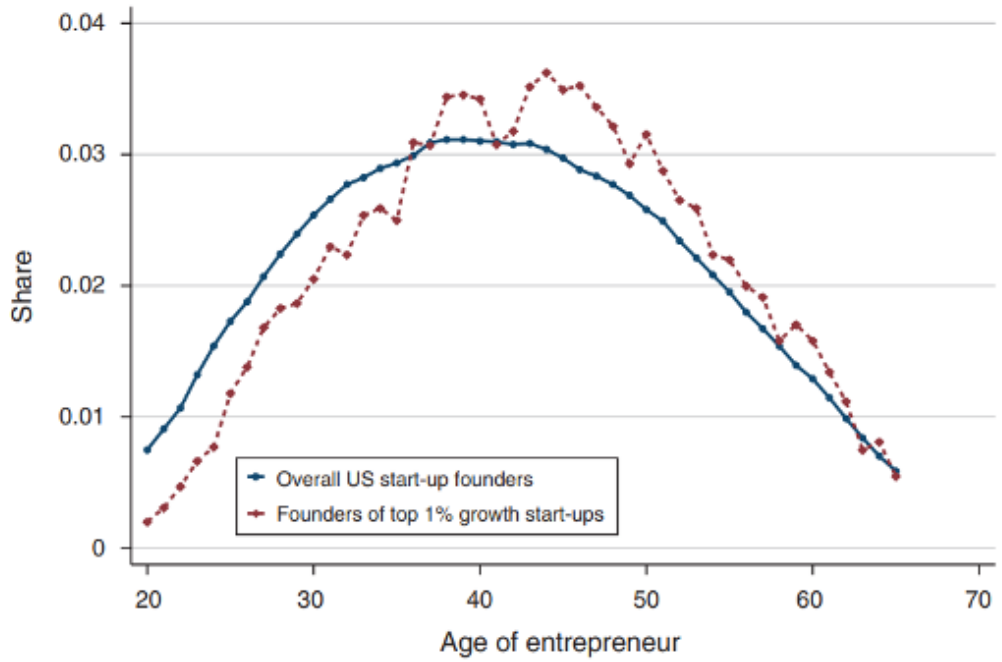
But not forms of entrepreneurship have the same economic significance

⚠ WHAT ARE SOME OF THE RISKS, UNCERTAINTIES AND TOPICS OF DEBATE RELATED TO THIS TREND? (CONTINUED)

A lot of entrepreneurial activity takes place in the informal economy, is limited to small-scale subsistence operations and often necessity driven. While the size of the informal economy has declined over the past thirty years, it still accounts for more than 70 percent of total employment in developing countries and roughly one-third of output. Globally two billion workers are employed informally outside the regulated economy and tax system and they are predominantly women, young and low-skilled. Work by the International Council of the PEC shines light on experience of working informally for cultural workers, ranging from TV scriptwriters in Colombia to traditional craft workers in India (British Council/PEC, 2021).

Pervasive informality is associated with low productivity, poverty, high unemployment and slower economic growth (World Bank, 2022). In sub-Saharan Africa, the productivity of informal firms, on average, is only one-fifth to one-quarter that of formal firms – a finding also documented for other regions (IMF, 2017). Informality, in turn, can have adverse spillovers on the activity of formal firms: for example, competition from the informal sector can erode formal firms' market share and the resources available to invest in new productivity-enhancing technologies insofar as formal firms are forced to shoulder the additional cost of tax and regulatory compliance (Amin et al., 2020).

Founder age distribution: all start-ups and high growth start-ups



Notes: This set of kernel density plots shows the age distribution of start-up founders (at year of founding) in the United States. Each bin represents an age cohort. Ages between 20 and 65 are incorporated in the plots. The blue (left) plot incorporates all founders of new C corporations, S corporations, and partnerships with employees founded between 2007 and 2014. The red (right) plot represents founders of the top 1 percent growth firms founded over the 2007–2009 period. Source: Azoulay et al. (2020).

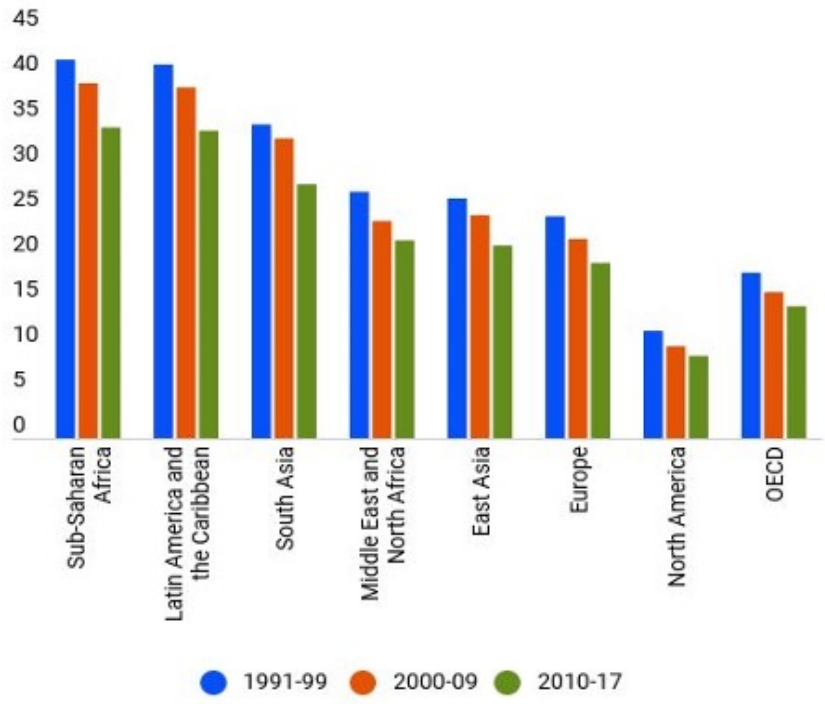
⚠ WHAT ARE SOME OF THE RISKS, UNCERTAINTIES AND TOPICS OF DEBATE RELATED TO THIS TREND? (CONTINUED)

Policymakers have focussed on pro-formalisation reforms such as reducing registration costs, streamlining taxation and using e-payroll but the results have been mixed. At times, there has been a tendency to vilify informality when, in fact, it is a symptom – rather than a cause – of a weak economy. Workers often have no alternative but informal work and this is their only source of income due to structural conditions such as corruption, low levels of education, social exclusion and cumbersome regulation. There is evidence that the informal sector can provide as a short-term buffer to adverse shocks in the formal economy even if, in the long-term, it increases the risk of poverty traps.

Others call for a more gradual or multi-tiered approach to reducing informality that addresses the underlying determinants of informality. This recognises that informality exists on a continuum. For example, traditional pro-formalisation policies may be better targeted at firms that are closer to the threshold of formalising on their own. But for the immediate needs of informal firms at the margins, a more productive approach might be to provide support without making formalisation an initial objective – for example, by encouraging the diffusion of low-skill-biased digital technologies, improving access to finance, strengthening the role of intermediaries and support structures and social protection coverage for informal workers (Benhassine et al., 2018; World Bank, 2023). A good example is TradeDepot in Nigeria that aims to improve supply chain management for informal retailers by connecting them to manufacturers.

More needs to be done to support firms with high-growth potential. For example, incubators and accelerators to support firms generally lack the features of good design, such as a results framework, clear objectives, well-defined eligibility and selection criteria, and robust monitoring and evaluation (M&E) systems (Grover et al., 2019). Many resemble technical and vocational training institutes oriented to SMME development rather than incubators in a conventional sense. Many of the graduating incubatees are informal sector survivalists – not businesses with high growth potential or a technological orientation (Bayen and Giuliani, 2018). More rigorous selection and entrance criteria and higher-powered incentives could help inject greater dynamism and discipline into support mechanisms for innovation and entrepreneurship.

Informal Economy by Region (average, percent of GDP)



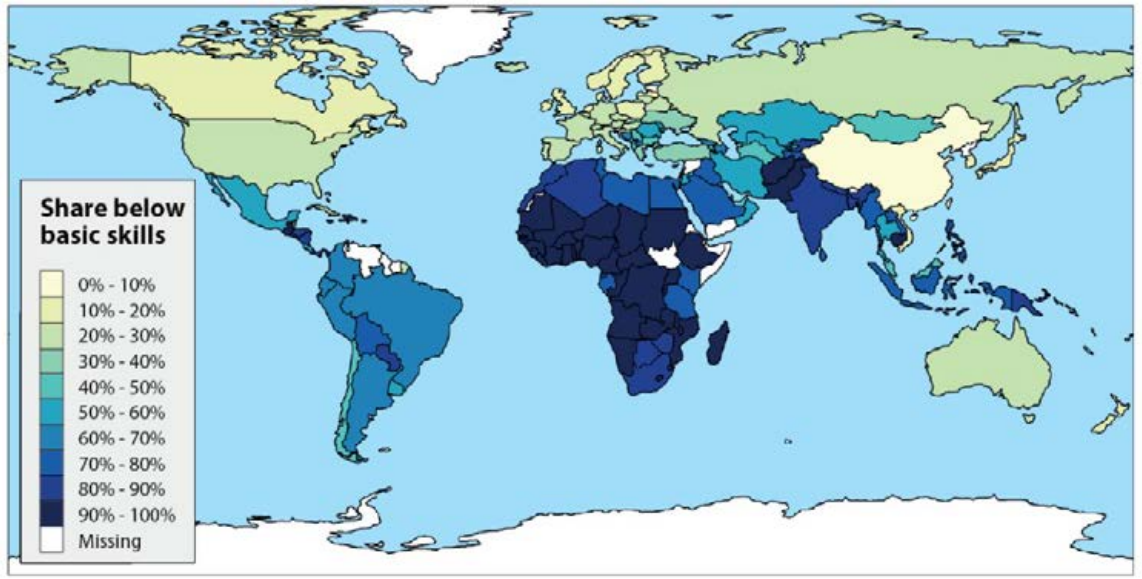
Source: Medina and Schneider (2019).

A world unprepared: the importance of skills

⚠ WHAT ARE SOME OF THE RISKS, UNCERTAINTIES AND TOPICS OF DEBATE RELATED TO THIS TREND? (CONTINUED)

Skills development is a critical pillar of success. Research indicates a strong relationship between basic skills and labour outcomes, particularly in the informal sector, despite its lower average returns (Adams et al., 2013). This foundation has proven to be an important factor influencing later skills acquisition and economic growth more generally (Hanushek and Woessmann 2015). Gust et al. (2022) estimate that the world would gain $718tn in added GDP over the rest of the century if it were to attain global universal basic skills. Harnessing traditional apprenticeships that are most frequent form of skills training in the informal sector and providing second-chance programmes have shown promise in this respect. This can complement more traditional educational strategies that emphasise teacher quality, effective accountability systems and direct rewards for good performance. Operational skills are also an area of focus. The glut of small informal firms is linked to weak management practices that make it harder to delegate authority, achieve specialisation and economies of scale. Akcigit et al. (2021) find that low efficiency of delegation in India explains over 5% of the productivity and 15% of income differences between US and India. In both high-income and low-income countries, lack of managerial and business skills such as marketing, project management and negotiation has been identified as a major bottleneck in the creative industries. Skills gaps and shortages have also been reported for generic transferable skills like communication and customer service skills, though some subsectors such as design, architecture and even theatre have fared better. Bottlenecks tend to be greater for high-skilled roles, particularly senior management where it is uncommon to find personnel with both a creative background and leadership skills (OECD, 2022).

World map of lack of basic skills



Note: Estimated share of children who do not reach basic skill level (equivalent to PISA level 1) in math and skills based on micro data of international and regional achievement tests. Source: Gust et al. (2022).

4 To do or to have: the experience economy and changes in leisure time

Trends shaping the future of the Creative Industries

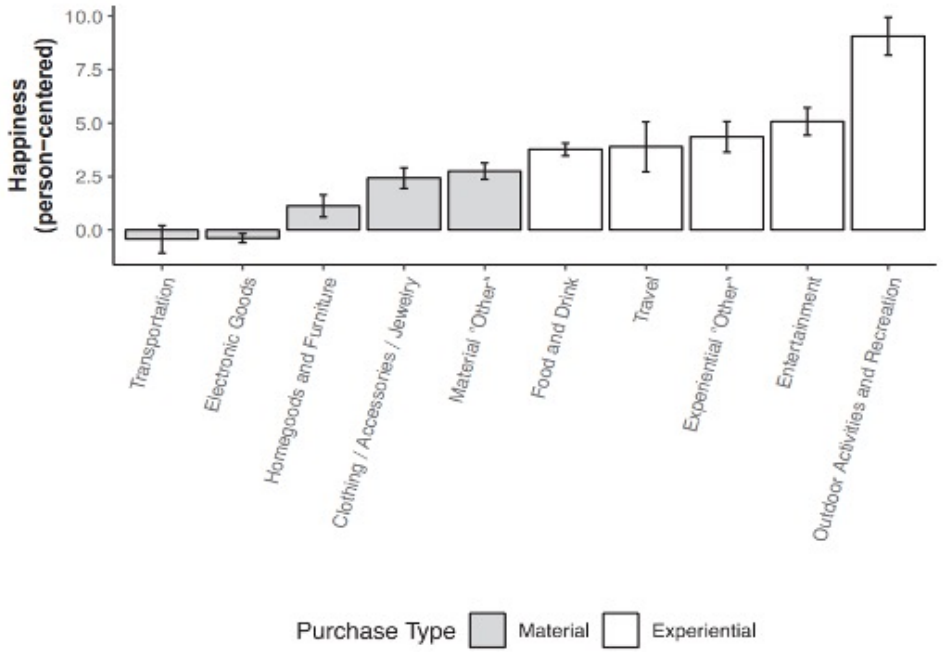
Experience Economy: Consumers of all ages are opting for experiences

WHAT IS THIS TREND?

The economy has been shifting towards experiential forms of consumption with people changing the way they prioritise and spend their money. This is consistent with a large body of research showing that experiences bring people more happiness than possessions (Van Boven and Gilovich, 2003; Dunn and Norton, 2013). There are a number of why experiences are more gratifying than material purchases:

- Experiences **elude simple comparisons with other available options**, so are less susceptible to regret and envy.
- Experiences **are more open to positive reinterpretation** – even experiences that do not turn out as planned – say, a long flight delay, a football game under the floodlights and rain or a sweaty, cramped gig – may turn into memorable stories.
- Experiences **are tightly linked with identity, social behaviour and a sense of connection**.
- Experiences **elicit greater pre-purchase anticipation** because consumers think about future experiences in more abstract ways that render them more meaningful and exciting.

Comparison of person-centered happiness scores for each of the detailed purchase types



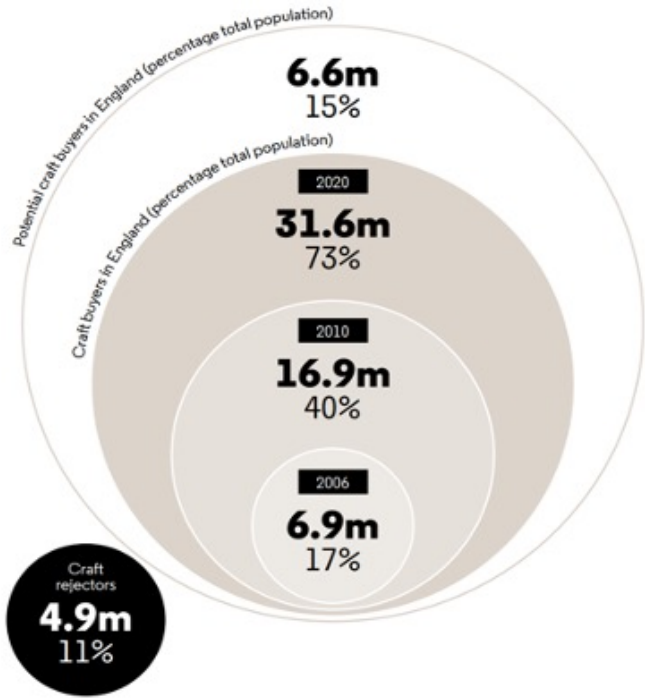
All categories of experiential consumption (light bars) were at least directionally higher than all categories of material consumption (dark bars). Material 'Other' purchases refer Error bars represent standard errors. Source: Kumar et al. (2020).

WHAT IS THIS TREND? (CONTINUED)

Alternative ownership models such as car and home-sharing are an important enabler of the experience economy (Sundarajan, 2016). They allow for resources to be more easily shared that in turn increases the availability and affordability of experiences. They also reduce the amount of capital that individuals have tied up in underutilised assets that can be spent on other experiences. Research shows that lower income consumers enjoy higher levels of surplus gains from the sharing economy while the willingness to use its goods and services is highest in emerging markets with the exception of Latin America (Fraiberger and Sundararajan, 2017; Guillen, 2020).

Experiences should be understood in broad terms. They encompass not only travelling and physical activities but also things like language learning, cooking, board games, esports and crafts-making. They increasingly blur the distinction between experiential and material purchases. Despite predictions of its demise, vinyl sales were worth more than $1bn to record companies in 2021 – their highest level in 30 years and higher than the sales of cassettes, CDs and digital albums combined. As Page (2022) observes "There's a warmth to the sound of vinyl, which emanates from dropping a needle on to a piece of grooved plastic, that is missing with digital music. Then there is the desire to associate oneself with something tactile, creating a signal of one's identity and forging a more direct connection to the artist". A similar story can be told for the increasing consumption of craft, artisan or premium goods.

The size and shape of the market in 2020



Source: Crafts Council (2020).

Experience Economy: Consumers of all ages are opting for experiences

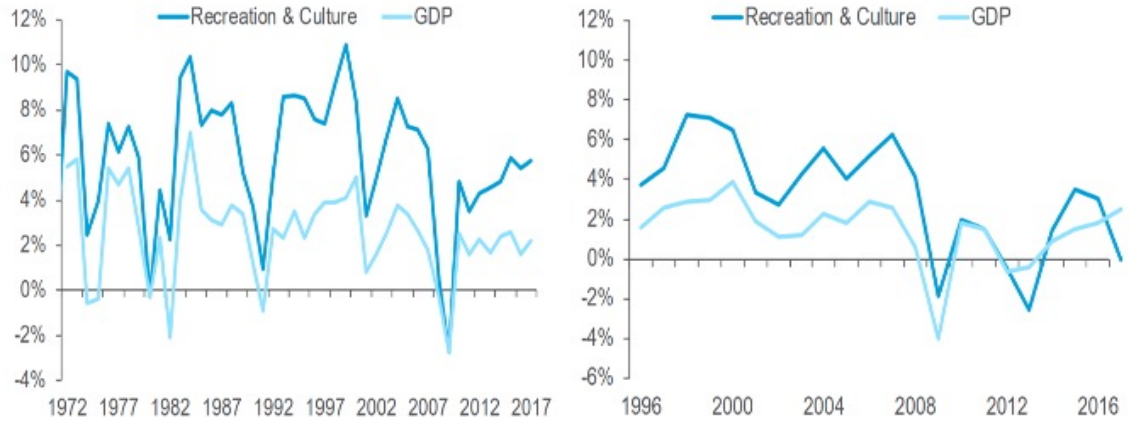
? WHY DOES THIS TREND MATTER?

The creative industries have benefited directly from these trends. Recreation and culture spend in both US and EU has grown 2.3-2.4x as fast as GDP growth over the last 20-40 years. Live events and festivals have been particular beneficiaries of the shift to experiences and have rebounded strongly from the Covid-19 pandemic.

Creative industries are also being enlisted to give the wider economy an 'experiential makeover'. Recent insights from neuroscience support the notion that our brains are primarily narrative. Stories are not only powerful tools of communication but central to the way we think, plan and plot (Boyd, 2009; Storr 2019). Even basic or functional products are increasingly constructed as stories. Consider Unilever's 'Dirt is good' campaign that attempts to align technical attributes of its laundry detergent with the spontaneity and abandon of childhood to increase brand loyalty. Storytelling extends to the provision of public goods: Disney's first brick-and-mortar investment in China was a chain of English language schools complete with classrooms arranged like stages with plush velvet curtains and images of different Disney characters lining the corridors (Kokas, 2017). It also offers a blueprint for sectors perceived to be in structural decline such as shopping centres that are thinking how they can make physical spaces more playful, interactive and exclusive – think Westfield shopping centre group's ten-year strategy 'Destination 2028'. Similar lessons apply to the cinema sector. Meanwhile experiential businesses are doubling down on their bets. It is not widely known that the MGM National Harbor, the casino resort opened in 2016, today has the largest public art collection in the Washington DC area outside of a museum with a special focus on work by African American artists (Grimes, 2021). Exposure to these experiences, in turn, has more direct benefits for creatives: evidence from the crafts sector suggests that when people understand how things are made and the skills involved, they have a deeper appreciation of craft and are more likely to buy a maker's work (Crafts Council, 2021).

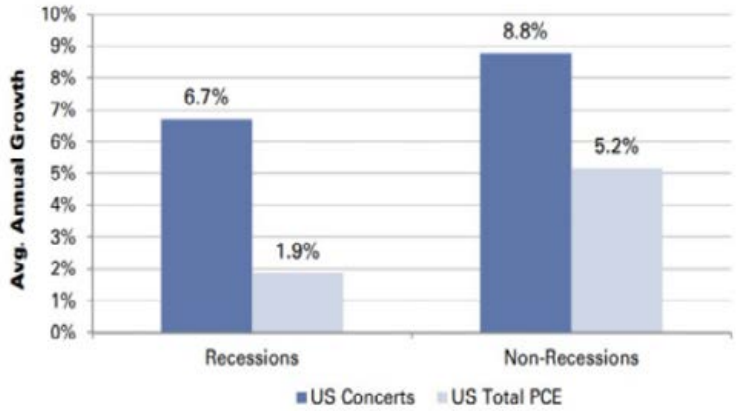
WHY DOES THIS TREND MATTER? (CONTINUED)

US (left) and EU (right) Recreation and Culture Spend vs. GDP (real terms)



Source: Citi, OECD (2020).

US consumer spending growth during recessions vs. non-recessions, 2000-16



Note: PCE =Personal Consumption Expenditure Price Index. Source: US Bureau of Economic Analysis, Goldman Sachs (2022).

WHAT ARE SOME OF THE RISKS, UNCERTAINTIES AND TOPICS OF DEBATE RELATED TO THIS TREND?

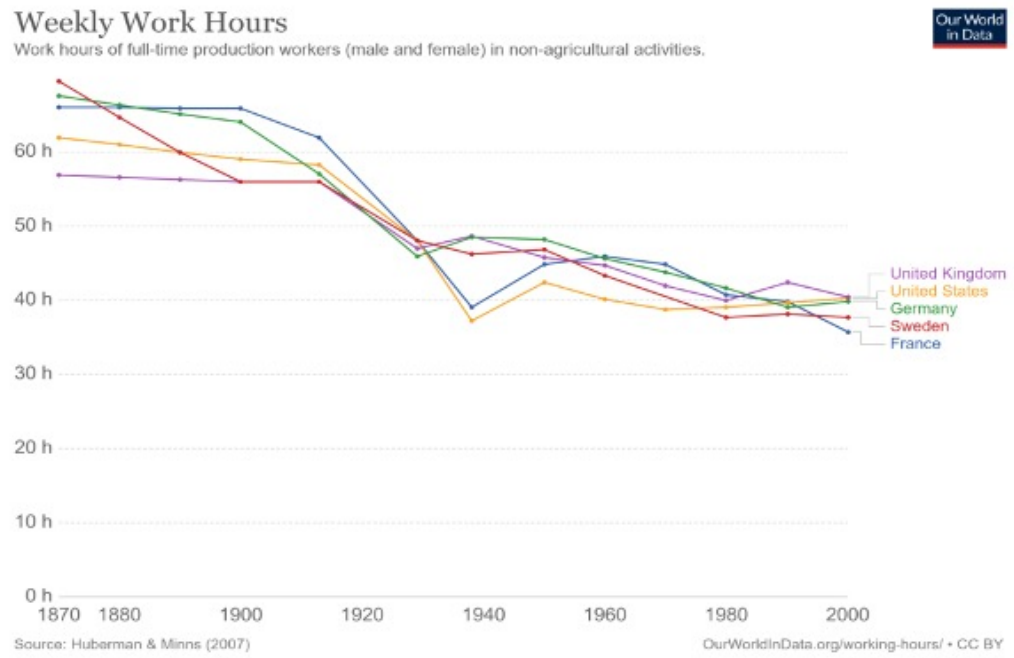
This trend is not without its critics. Brooks (2022) criticises what he calls the mindless valorisation of storytelling which, in his view, has made people susceptible to those with more malevolent intentions – "inertly accepting the notion that all is story, and that the best story wins". Zuckerman (2023) argues that we live in the 'Age of the Bullshitter' where the importance of network effects and need to coax a critical mass of users onto a given platform or technology put a premium on the ability to tell a good story.

Experience Economy: a life of leisure?

⚠ WHAT ARE SOME OF THE RISKS, UNCERTAINTIES AND TOPICS OF DEBATE RELATED TO THIS TREND? (CONTINUED)

Working hours have declined sharply over past 100-150 years due to labour-saving technologies, expanding the time available for experiences and the creative economy. But despite this decline, Keynes famous prediction of a 15-hour working week by 2030 has not materialised. Indeed, the number of people in 'time poverty' – defined by the OECD as those for whom the share of time devoted to leisure activities is less than 60% of the median – has risen since 2000. Where did Keynes go wrong? A number of potential explanations come to mind:

- **Stagnation in median incomes** requiring households to work harder to maintain the same standard of living.
- **Habit formation, social comparison and network effects** inducing people to consume more and also work more.
- **Long hours disproportionately rewarded in labour market** reflected in the fact that high-wage workers also have less free time than ever.
- **Rising house prices**, particularly in urban centres that promise shorter commuting times but are largely unaffordable without working longer hours.
- **Leisure is getting leaky**: technology and the ability to multitask makes it easier for work to encroach on leisure (Thompson, 2016).

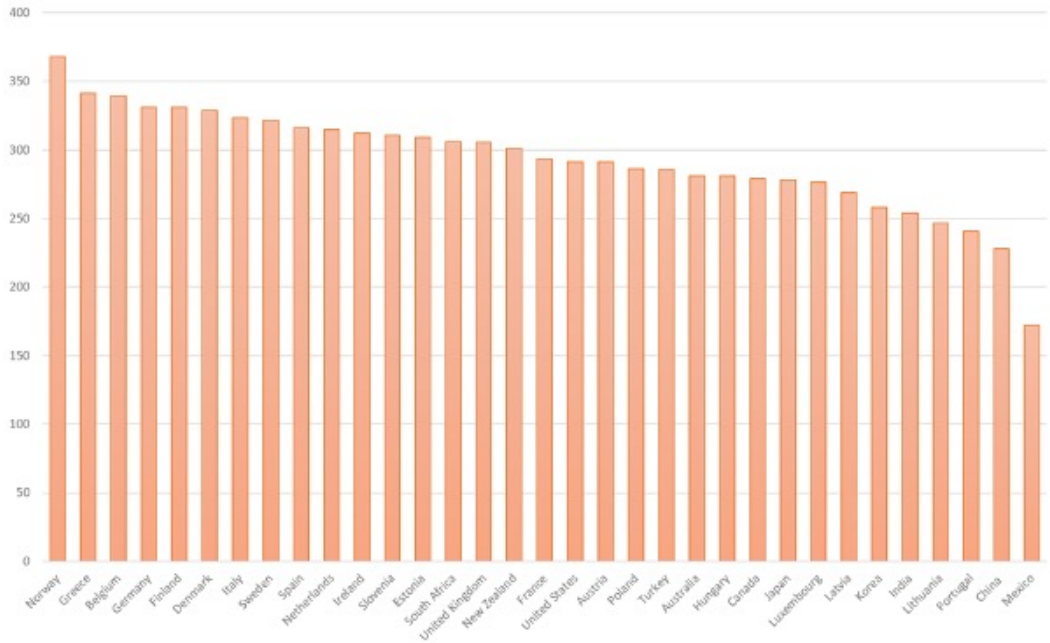


Source: Our World in Data.

⚠ WHAT ARE SOME OF THE RISKS, UNCERTAINTIES AND TOPICS OF DEBATE RELATED TO THIS TREND? (CONTINUED)

Trends vary significantly across gender and country. In the UK, women spend more than twice as much time on childcare than in the 1970s, even though they are also doing more paid work (Bangham and Gustafson, 2020). This may be explained by changing attitudes among parents towards risk and willingness to let children play without adult supervision and shifting definitions of which activities count as childcare (O'Connor, 2021). OECD time-use data indicates people in Nordics (aged 15 to 64) spend an average of 3.5 hours per day on leisure. By contrast time spent in countries like China and Mexico is half to two-thirds of this. In some countries, there have been growing calls for government and business to introduce a four-day working week and more generous annual-leave policies as the relationship between longer hours, wellbeing and productivity is called into question (Plunkett, 2021).

Time Spent on Experiences – Minutes per Day, latest year



Source: OECD data aggregating time spent on activities, including sports; participating/attending events, visiting or entertaining friends, TV or radio at home; and other leisure activities among 15-64 years old.

5 Millennials and Gen Z and implications for creative businesses

Trends shaping the future of the Creative Industries

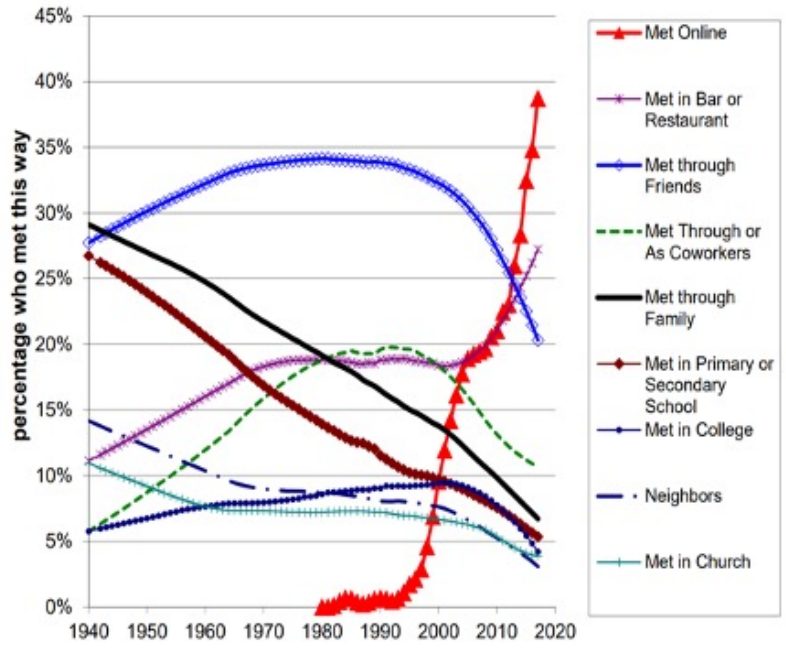
Millennials and Gen Z are true digital natives with implications for businesses and the economy

WHAT IS THIS TREND?

Millennials, defined as those born between 1980 and 1994, are now the largest and most educated adult cohort worldwide. Both millennials and Generation Z (born 1995-2012) have grown up around digital technology, particularly social media and mobile devices. This hyperconnected generation does not differentiate between online and offline. One third of Americans aged 16-24 believe that digital connectivity is more important than food and 11% believe it is more important than air (Deutsche Bank, 2020). The proportion of US teens who meet up in-person with friends less than once a month stood at 3% between 1990 and 2010, but had climbed to 10% by 2019, while the share who say they are 'constantly online' now stands at 46% (Pew Research, 2022).

Millennials and Generation Zers in OECD countries have experienced significant economic insecurity over the course of their lives. They first entered the job market in the aftermath of the 2008 financial crisis and went through their second 'once in a lifetime' downturn during the pandemic. Research shows that early career economic conditions have large and lasting impacts on lifetime wages, particularly those with higher educational attainment (Oreopoulos et al., 2012; Schwandt, 2019). Many are likely to bear the scars in terms of lower wealth (adjusted for house price inflation), delayed milestones such as paying down debt, homeownership or starting a family along with poorer mental health (McKinsey, 2022).

The continued rise of meeting online for heterosexual couples (US)



Online dating has become the dominant way couples of all ages meet, though Millennials and Generation Zers take this one step further by turning to virtual partners for companionship. Source: Rosenfeld et al. (2019).

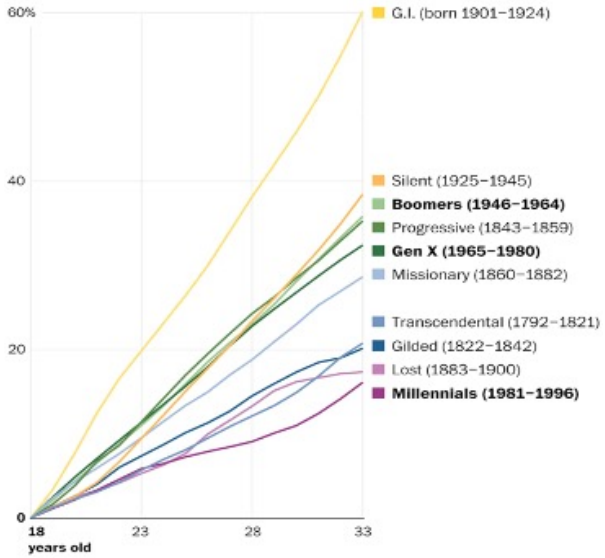
WHAT IS THIS TREND? (CONTINUED)

Repeated economic shocks have left an enduring mark on beliefs and values. Cotofan et al. (2023) find that recessions in an individual's 'impressionable years' create cohorts of workers who give higher priority to income, whereas booms make cohorts care more about job meaning for the rest of their lives. In turn, this may affect individuals' choice of a specific field of study in post-secondary education with potential knock-on effects for creative subjects (Blom et al., 2021). More generally, poorer economic conditions when young can shape attitudes towards the role of luck and effort in success, risk-aversion and trust in formal institutions and the efficacy of government (Malmendier and Nagel, 2011; Giuliano and Spilimbergo, 2014; Foa and Mounk, 2016; Eichengreen et al., 2022). It is not difficult to find signs of this behaviour: enabled by mobility and digital connectivity and the uncoupling and reconstitution of the wider social contract, many millennials are instead embracing a 'horizontal culture' where they look to each other or communities gathered organically around a shared interest or theme for guidance (Gurri, 2018; Albright, 2019).

These attitudes are less apparent in emerging markets where younger cohorts are much more optimistic about the future (Deloitte, 2019). This may reflect the greater economic opportunities enjoyed by millennials in developing countries relative to their parents or grandparents as well as the higher baseline expectations of millennials in richer countries relative to their developing country peers. Similar differences are observable across democracies and autocracies where higher expectations of government responsiveness in democracies can result in sharper and more persistent revisions downwards in political trust when things go wrong. But there is no guarantee that these trends will continue. Studies find that instability often follows an improvement in economic and social conditions as rising expectations go unfulfilled and result in disappointment. From being among the most optimistic groups in the world, Chinese youth have turned gloomier in recent years in the face of mounting economic uncertainties and competition for resources – the unemployment rate among those aged 16-24 has risen from 11% in 2018 to nearly 20% in early 2023, the highest among any age group in the country. New vocabularies have emerged to articulate this disenchantment – 丧, 佛系, 内卷, 躺平, 摆烂 and 孔乙己的长衫 – that have drawn official censure. The share of youngsters not in employment, education or training in other low-income and emerging markets is worth monitoring (Papadavid, 2023).

Growth in economic output, adjusted for population (US)

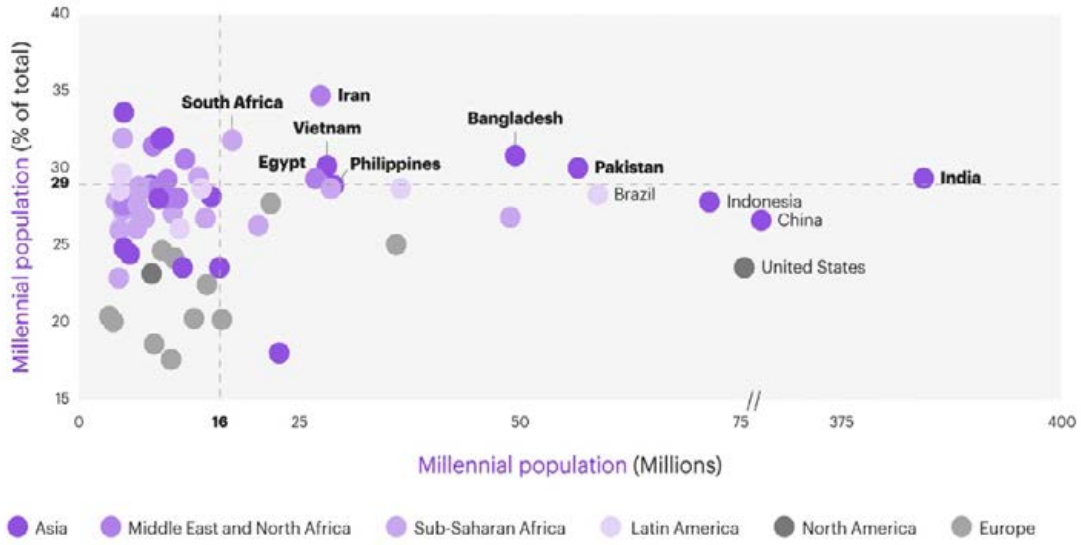
How much inflation-adjusted gross domestic product per person grew during each generation's first fifteen years in the workforce, starting at age 18, averaged across all the birth years within each generation



Note: Averages for millennials are based on fewer years of available data; when population values aren't available, they have been estimated assuming linear population growth.
Source: Congressional Budget Office (1790-1928 GDP); Commerce Department (1790-1820 and 2017-2020 population, 1929-2019 GDP); Goldman Sachs (2020 GDP); Maddison Project (1820-2016 population); Pew Research (generations after 1925); Strauss and Howe (generations before 1925)

Source: Washington Post (2020).

Absolute and relative size of millennial population globally, 2016



Note: In bold, the eight "Millennial Majors." The dividing lines are drawn at the value for the 20th-highest ranked country in the world on each of the Millennial population measures

Source: Kearney (2016).

The demand for authenticity and engagement – as well as the untethering from traditional institutions – have come together in the shape of social media entertainment

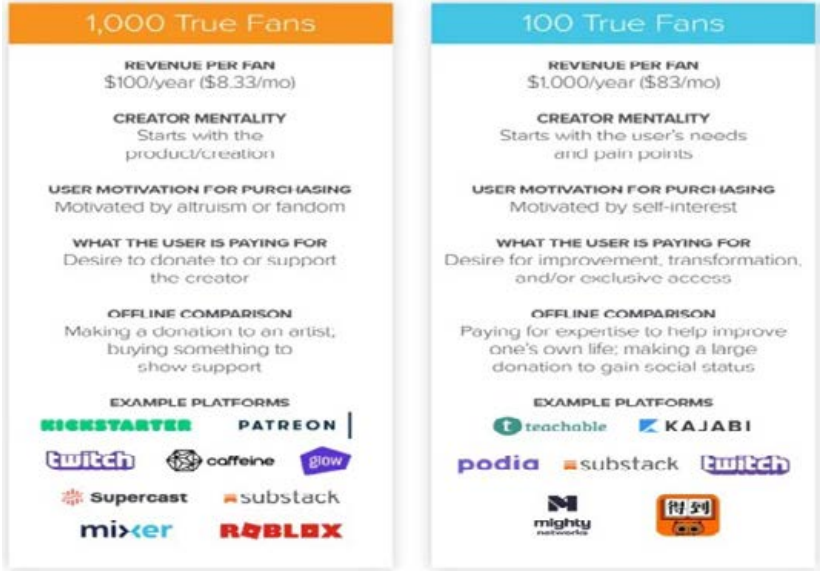
WHY DOES THIS TREND MATTER?

As early adopters of almost every technology, millennials have had an outsized influence on direction of many markets despite not having the same spending power as older groups. Emblematic of this trend is growth of social media entertainment (SME) that combines deep fan and community engagement with formats such as livestreams, podcasting and increasingly short-form video (Craig and Cunningham, 2019). The role of intimate, albeit imagined, relationships between creators and fans has its dark side but, when done well, it allows audiences to interact not only as fans but effectively become contributory producers in the creative process (De Wit et al, 2020; Lim et al., 2020; Wulf et al., 2021; Kowert and Emory Jr., 2021).

The scale of the creator universe is significant. The total addressable market of the creator economy is estimated to be worth between $100bn and $250bn, with the number of creators ranging from 50m to 300m depending on how broadly or narrowly terms are defined. This includes significant numbers in emerging economies like India (92mn), Brazil (20mn), Nigeria (11mn) and Mexico (9mn) (Florida, 2022). Goldman Sachs (2023) expects the creator economy to expand at an impressive 14% CAGR, reaching $480bn in 2027.

It has been making inroads into traditional media. In 2021, young adults in the UK spent more time on TikTok than watching broadcast television (Ofcom, 2022). Its cultural and social reach extends even further: one survey commissioned by LEGO finds that children are three times more likely to aspire to be YouTubers (29%) than astronauts (11%) while some creators have more name recognition than mainstream celebrities. The SME also shares links with other nascent sectors such as eSports that is predicted to be worth $9.6bn by 2030 versus $1.4bn today ($11.4bn by 2030 including eSports betting) (Barclays, 2022). At the same time, it has given a new lease of life to pursuits like chess that have struggled with perceptions of elitism, making them more fun and accessible (Thornhill, 2023).

Mechanisms and strategies to reach superfans



Source: Jin (2020).

WHY DOES THIS TREND MATTER? (CONTINUED)

Large ad-based platforms play a central role in the SME, though they are being joined by new membership services. Platforms such as Patreon and Substack allow for creators to receive monthly earnings from their followers, either in exchange for exclusive content, access to creators or simply as a means of support. Andreessen Horowitz, the US venture capital firm, estimates that creatives may be able to make a living off just 100 true fans by offering them differentiated content, community, accountability and access. Interestingly, conversion rates of followers into these superfans have grown steadily over time: on Patreon, the share of new members paying more than $100 per month – or $1,200 per year – has grown 21% since 2017 – a trend mirrored on other creator platforms (Jin, 2020). Research also finds that a creator's average net revenue is inversely proportional to the number of creators that use the platform (Citi, 2023).

New ways to monetise audiences are emerging. A good example is livestream shopping, pioneered in China (直播带货), that blends ecommerce, entertainment and social media. In 2022, the overall social commerce market in China accounted for 15.9% of the country's total retail eCommerce sales, boasting around 467mn social buyers compared to a 5% estimated penetration in the US (Citi, 2022). However, the situation is slowly beginning to change. Inspired by the rapid growth of shopatainment in China, new ventures including Popshop, Verishop, OOOOO and NTWRK are now competing with the likes of Instagram and TikTok to redefine online retail for a new generation of consumers in the US and Europe. For advertisers trying to reach younger users, influencer ads can feel more personal and are perceived as more trustworthy than traditional advertising. A survey by Mediakix found that 89% of marketers reported that influencer marketing had a comparable or higher ROI than other marketing channels. On some estimates, social commerce could reach around 7.5% of US eCommerce sales by the end of 2025, growing at a compound annual growth rate (CAGR) of 25% compared to eCommerce growth of 9% over the period 2021-25 (Citi, 2022).

Livestreaming sessions by hosts Li Jiaqi and Viya on Alibaba's e-commerce app Taobao have garnered millions of viewers from shoppers in China. Mixing variety show, infomercial, group chat and gamification principles, social commerce has significant potential outside China. However, it is held back by the fragmentation of payment networks, marketplaces and lenders. Brands must also take into account some of the challenges associated with using livestreamers who often demand deep discounts for featuring products and the basic fact that customers' loyalty is to the influencer rather than the brand. Finally live-streamed shopping has been designed with mobile in mind, though US and European consumers still prefer to shop on PCs and laptops.

Metaverse: hype or reality?

WHY DOES THIS TREND MATTER? (CONTINUED)

As younger consumers spend more time in virtual spaces, the next stage in development could be a metaverse that seamlessly melds our digital and physical lives. In its fullest incarnation, the metaverse incorporates a sense of immersion, real-time interactivity, user agency, interoperability across platforms and devices, concurrency with thousands of people interacting simultaneously and use cases spanning many areas of human activity (McKinsey, 2022). Gamers are already living in a metaverse of sorts: platforms like Roblox, Minecraft and Fortnite are built around the notion of building and sharing immersive content. They allow participants to construct consistent digital identities with avatars that incorporate elements of self-expression such as emotion and speech, AI-reactive movement and tools for user-generated content. They are also evolving to address multiple use cases, such as virtual concerts (e.g. Travis Scott and Marshmello) and sports events (e.g.recreation of Man City's Etihad Stadium). To date, McKinsey (2022) observes that almost 60% of consumers prefer at least one activity in the immersive world versus the physical alternative while 79% of consumers active in the metaverse have made a purchase in it.

Despite still being in its infancy, the economic impact of metaverse could be enormous (Ball, 2022). In theory, at least, the total addressable market of the metaverse should be all internet-related revenue plus that of the physical-world activities being displaced, adding up to $13tn in a best case scenario. As evidence of this potential, large technology companies, venture capital, private equity, start-ups, and established brands are embracing the metaverse. Interestingly large technology companies have invested more heavily in metaverse they did for artificial intelligence (AI) at a similar stage in its evolution.

Commentators believe the metaverse has the cultural potential to succeed the internet as a computing platform. Narula (2022) argues that the metaverse is more than just a really rich virtual world. Rather it is a network of consequences and meaning between multiple worlds – the world of ideas and the physical world – in which people are simultaneously engaged and invested with value flowing through and between the two worlds. It raises fascinating philosophical questions about what constitutes 'genuine reality' and how we understand identity, consciousness, agency and creativity (Chalmers, 2022).

Scenario Analysis – Potential Metaverse Market Opportunity ($tn)

% of TAM Expansion	% of Digital Economy Shifting to Metaverse									
	15.0%	17.0%	19.0%	21.0%	23.0%	25.0%	27.0%	29.0%	31.0%	33.0%
10.0%	$ 3.75	$ 4.05	$ 4.35	$ 4.66	$ 4.96	$ 5.26	$ 5.56	$ 5.86	$ 6.16	$ 6.46
15.0%	$ 4.51	$ 4.81	$ 5.11	$ 5.41	$ 5.71	$ 6.01	$ 6.31	$ 6.61	$ 6.91	$ 7.21
20.0%	$ 5.26	$ 5.56	$ 5.86	$ 6.16	$ 6.46	$ 6.76	$ 7.06	$ 7.36	$ 7.66	$ 7.96
25.0%	$ 6.01	$ 6.31	$ 6.61	$ 6.91	$ 7.21	$ 7.51	$ 7.81	$ 8.11	$ 8.41	$ 8.71
30.0%	$ 6.76	$ 7.06	$ 7.36	$ 7.66	$ 7.96	$ 8.26	$ 8.56	$ 8.86	$ 9.16	$ 9.46
35.0%	$ 7.51	$ 7.81	$ 8.11	$ 8.41	$ 8.71	$ 9.01	$ 9.31	$ 9.61	$ 9.91	$ 10.21
40.0%	$ 8.26	$ 8.56	$ 8.86	$ 9.16	$ 9.46	$ 9.76	$ 10.06	$ 10.36	$ 10.66	$ 10.96
45.0%	$ 9.01	$ 9.31	$ 9.61	$ 9.91	$ 10.21	$ 10.51	$ 10.81	$ 11.11	$ 11.41	$ 11.71
50.0%	$ 9.76	$ 10.06	$ 10.36	$ 10.66	$ 10.96	$ 11.26	$ 11.56	$ 11.86	$ 12.16	$ 12.46

The table provides an illustrative scenario analysis around (i) what percentage of the global digital market will shift towards the virtual world and (ii) how far the metaverse could expand the total addressable market (TAM) through new incremental revenue streams. The UN estimates that the global digital economy represented 15.5% of total GDP in 2018, with the digital economy's share forecast to grow ~125bps to 16.8% by 2021, equivalent to ~$15tn. Source: Goldman Sachs (2021).

Early examples of retail companies active in the metaverse

Primary focus	Companies	Metaverse	Intention/Examples
Extended connection between customer and brand	Burberry Louis Vuitton Nike Ralph Lauren Zara	Decentraland Roblox 'The Game'	Create greater connection to customer and enhance brand and community experience Louis Vuitton: Distribution of NFT to celebrate 200th birthday (https://nftplazas.com/louis-vuitton-gamified-nfts-celebrate-birthday/) Zara: Release of 'Meta Collection' (https://de.fashionnetwork.com/news/Zara-dringt-weiter-ins-metaversum-vor,1392146.html) Ralph Lauren: Virtual shop for Avatars on Roblox (https://t3n.de/news/ralph-lauren-shop-roblox-1441623/)
New revenue stream and channel	Adidas Balenciaga Dolce & Gabbana Forever 21 Gucci H&M Ikea Sotheby's Tommy Hilfiger Vans	CEEK Decentraland Fortnite Roblox The Sandbox	Boost revenues via complementary sales in many cases together with physical goods Balenciaga: Provides possibility for users to produce digital objects themselves and transform into physical items (https://www.ga-magazin.de/mode/artikel/warum-ist-die-modewelt-so-besessen-vom-metaverse) Sotheby's: Users can curate and sell digital artwork or NFTs with the aid of metaverse branch (https://www.sothebys.com/en/articles/next-stop-the-metaverse) H&M: In a concept cooperation with CEEK City customers have the opportunity to order clothing from physical stores after orientation in the metaverse (https://www.textilegence.com/en/ceek-presented-hm-metaverse-concept-store/)
New channel for information and communication	Carrefour P&G	Own environment The Sandbox	Drive corporate communication and product information P&G: Consumer can interact with multiple brands for information purposes (https://us.pg.com/blogs/designing-for-the-future-metaverse/) Carrefour: Host virtual career events (https://themediaverse.com/supermarket-carrefour-is-now-holding-job-interviews-in-the-metaverse/)

Source: Deutsche Bank (2022).

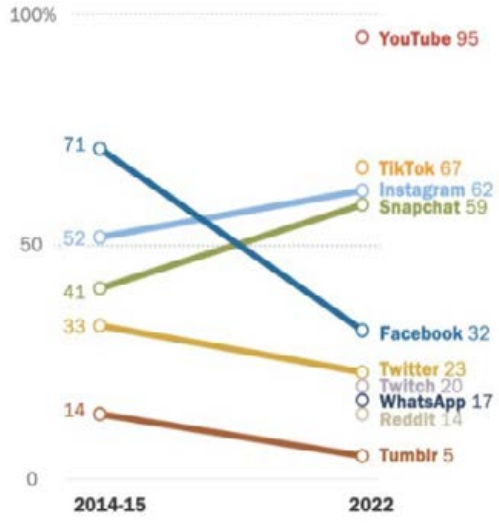
Millennials, Gen Z and new digital experiences

⚠ WHAT ARE SOME OF THE RISKS, UNCERTAINTIES AND TOPICS OF DEBATE RELATED TO THIS TREND?

A constant diet of digital media, combined with the churn of online life has raised questions about the effects on young people's mental health (Burn-Murdoch, 2023). This debate is far from settled. Causal statements are plagued by confounding variables such as changes in economic conditions and financial security that have simultaneously affected young people (Harris, 2017). But it is not difficult to isolate aspects that appear problematic. A deceptively simple example is the use of filters to alter or perfect one's online appearance (Foster Wallace, 1997; Garelick, 2022). Today effects like Bold Glamour allow individuals to sculpt their cheekbones, plump lips, remove blemishes and shave off weight that some fear are taking harmful beauty standards to new extremes, harbouring feelings of inadequacy at a stage in life when behaviours and attitudes are highly susceptible to peer influences (Brechwald and Prinstein, 2011).

The rewards of social media entertainment are highly skewed. Data leaked as a part of a massive hack found that between January-September 2021 the top 1% of all streamers on Twitch earned more than half of all revenue on the platform. Indeed just 5% of streamers on Twitch managed to make over $1,000 while three-quarters of streamers made less than $128 and more than half earned less than $28 (Uberti and Needleman, 2021). Similar winner-take-all patterns are reproduced on other platforms: on YouTube, the vast majority of all views (85%) goes to a small minority of channels (3%) (Bartl, 2018; Citi, 2023). It is interesting to note that traditional media are less concentrated than the creator economy. For instance, 70% of global box office receipts in 2019 came from roughly 20% of films. The share of spoils captured by platforms adds to these questions with some much less generous to creators (e.g. Roblox, Twitch and TikTok) than others (e.g. Patreon and Spotify), though new challengers are emerging (e.g. Kick). Regardless of the platform, most require creators to achieve a certain level of popularity before they share ad-revenues. There is also controversy regarding the 'demonetisation' of videos and the opaque rules around what material violates guidelines against harassment or poor taste and might be disqualified from ad revenues. On the other hand, low barriers to entry mean that SME channels are often more culturally diverse than mainstream media (Cunningham and Craig, 2019).

% of US teens who say they use the following apps or sites



Source: Deutsche Bank (2022).

⚠ WHAT ARE SOME OF THE RISKS, UNCERTAINTIES AND TOPICS OF DEBATE RELATED TO THIS TREND? (CONTINUED)

Quality issues. Some question the cultural value of the content that is most successful on these platforms, including react videos, game and talk shows, stunts, beauty tips, gambling and adult content (Cunningham and Craig, 2019). On the other hand, with the proliferation of technology and content creation tools, it is not inconceivable that user generated content on YouTube and TikTok could over time become the new content middle with an explosion of high quality content and become the new TV.

A true metaverse experience is unlikely anytime soon for technical reasons. The most immersive virtual world experiences today like Fortnite or Microsoft Flight Simulator rely on relatively workarounds. Consider Fortnite where users participate only via an affixed point in the time version of the map; actions are observable only to a small number of players (~100); and any changes made to the map are deleted within minutes. Intel (2021) estimates that it will require a 1,000-times increase in computational efficiency from today's state of the art to achieve immersive computing at scale accessible by billions of humans in real time and this is unlikely to be achieved within the next decade.

The metaverse will require a substantial departure from current business models, increasing adjustment costs. Interoperability is core to the metaverse where different standards, interfaces, IP and brands coexist and users move freely through different virtual worlds, ensuring continuity of identity, history, entitlements, objects, communications and payments. By contrast, most of today's web is closed and proprietary and power is lopsided. Persuading erstwhile competitors to cooperate will not be easy, particularly where it means relinquishing network effects that are central to business models. Incumbents also have a patchy track record of providing the types of community that would support an idealised metaverse. For example, Facebook has fallen from grace among many Gen Zers who consider it too transactional and top-down – hence the emergence of smaller social networks such as BeReal, Locket Widget, Yubo, Poparazzi and Discord (where classified Pentagon documents were leaked) that place greater weight on intimacy (Clarke, 2022; Rajendra-Nicolucci et al., 2023). The app Minus goes as far as limiting users to only 100 posts on their timeline for life. The rationale is to make people feel connected in a setting where their time together is viewed as a precious and limited resource, in contrast to the endless engagement on traditional social networks. A true metaverse would be capacious enough to house these communities. But even as pressures for interoperability and compatibility grow, it remains likely that outcomes will converge on multiple, connected multiverse ecosystems rather than a single, open, decentralised platform as envisaged by purists.

Regulatory barriers to large-scale adoption and value creation. To ensure the metaverse experience ethical, safe and inclusive, guidelines will be necessary around issues including data privacy, physical health and safety, digital identity and credentials as well as IP and the applicable jurisdiction for digital objects like NFTs. These issues pervade the regulation of the internet in general but they are made more urgent by the immersive experiences on the metaverse and VR.

6 Values-based consumption and the rise of sustainable investing

Trends shaping the future of the Creative Industries

Commitment to ethics and values in business is important for millennials and other groups

WHAT IS THIS TREND?

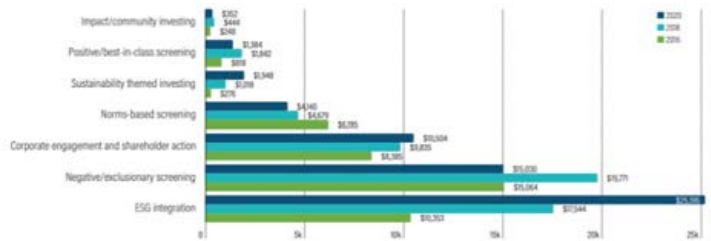
Consumers and workers increasingly expect companies to act with a larger purpose in mind. This is reinforced by technology, social media and new sources of data that have made the actions of companies more transparent, deepening accountability and raising the reputational costs of corporate misconduct (Mayer, 2018; Serafeim, 2022). As a sign of the times, in 2019, the Business Roundtable, a highly influential group comprising CEO of the largest, most powerful companies in the world, rejected the view that the business of business was merely to advance only the interests of shareholders. Rather it declared a commitment to delivering value to all stakeholders.

WHY DOES THIS TREND MATTER

Companies are finding it difficult to neglect this agenda, even if only for instrumental reasons. Edelman (2020) reports ethical drivers such as social and environmental purpose are three times more important to public trust in business than competence. Given the fragility of trust and goodwill, a single transgression can transform sentiment towards a business and years of hard work overnight (Sheffi, 2018). Consumers are also aligning their beliefs with their shopping habits. NYU Stern's Center for Sustainable Business finds that 50% of US consumer packaged goods growth from 2013 to 2018 came from sustainability marketed products with products marketed as sustainable growing 5.6x faster than those that were not (Whelan and Kronthal-Sacco, 2019). Perhaps surprisingly, similar findings are reported in emerging economies (HSBC, 2022). At the same time, matters for recruitment and performance, particularly at a time when rising input costs, including employee turnover, have become key risks to corporate margins and industrial action is on the rise around the world (Burbano, 2016, 2019).

The mainstreaming of sustainable investing is testament to the growing importance of ethical preferences. Global sustainable assets, a broad category of investments that considers environmental, social and governance (ESG) factors in portfolio selection and management, climbed from $18.3tn in 2014 to $35.3tn in 2020 (GSIA, 2021). Upstart Co-Lab finds that in the US Creative Economy funds with a sustainability mandate had a combined AuM in excess of $60bn in 2017/18, led by sustainable food. Nesta's Arts & Culture Finance Fund in the UK, the HEVA Fund in Kenya, France's Mirabaud Patrimoine Vivant and Brazil's Trê are further examples of impact investments funds fully dedicated to the creative economy. There is also growing interest in sustainability-linked bonds. These instruments integrate a specific set of key performance indicators (KPI) that issuers commit to achieve, accruing additional payments to bondholders should they fall short. All this has been supported by a raft of ESG disclosure requirements that have moved from being optional to mandatory in many countries (HSBC, 2022).

Global growth of ESG by strategy 2016-2020, including double counting, $tn



Source: GSIA (2021).

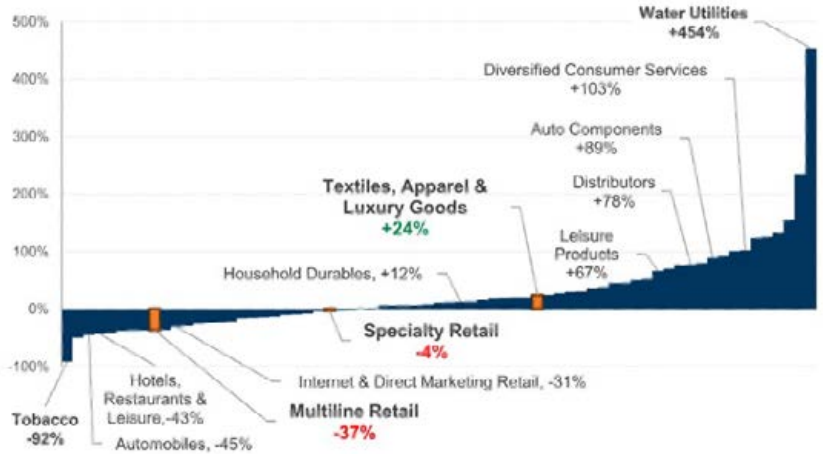
⚠ WHAT ARE SOME OF THE RISKS, UNCERTAINTIES AND TOPICS OF DEBATE RELATED TO THIS TREND?

Concerns about 'greenwashing' have risen up to the agenda. A number of businesses have been accused of making groundless sustainability claims in order to launder their image without delivering real change, spawning cynicism about purpose (Langley and Miller, 2022). In a 2021 survey, 88% of American Gen Zers said they don't trust brands' ESG claims while 42% said they did not know what made items like clothes sustainable (BOF, 2022).

The reliance on cheap and scalable solutions like third-party ESG ratings and blanket exclusions has further added to confusion. Different rating agencies disagree substantially on a company's ESG performance, sending mixed messages to companies about which actions are expected and will be valued by the market (Berg et al., 2022). Consider the exposure of many sustainable funds to fast fashion retailer Boohoo that saw its share price fall sharply after allegations of poor working practices in its UK supply chain, notwithstanding high scores from external rating agencies such as MSCI. The traditional preference for divestment has also led to debate over whether it is the best way to implement ESG preferences or whether it is simply denying investors the opportunity to engage with the companies that need it most or have credible transformation plans in place. This, in turn, raises questions about the willingness, ability and incentives of investors to engage closely with businesses and truly understand drivers and barriers to performance (Edmans and Holderness, 2017; Edmans, 2020). These issues have assumed greater importance in the wake of the Ukraine conflict, which has shown the risks of taking a blanket approach to an industry and the extent to which many historically avoided industries often serve critical societal needs.

Many creative subsectors are not significantly overweight in ESG funds. This indicates a neutral perception from investors and the opportunities to capture the growing pool of ESG AUM if creative businesses can demonstrate genuine engagement on key ESG issues or align their business models with sustainable outcomes.

Consumer Discretionary and other select subsectors (GICS-3) average relative over/under-weighting versus weighting in the benchmark in ESG funds



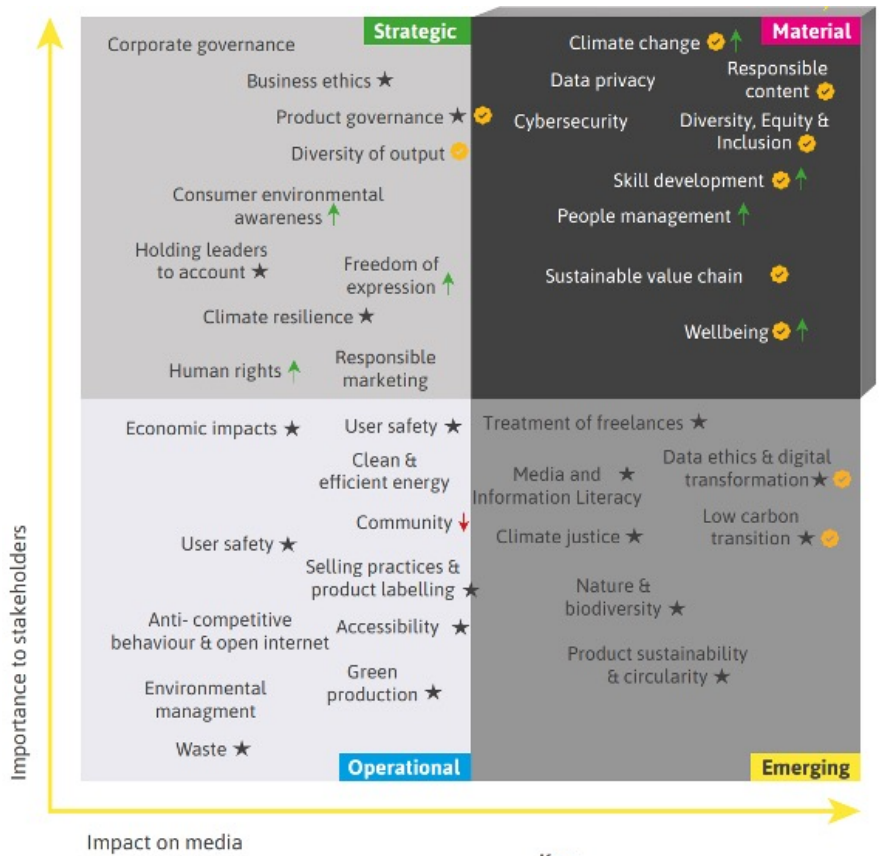
Source: Goldman Sachs (2021).

But implementing purpose is a challenge and it must be weighed alongside other considerations

⚠ WHAT ARE SOME OF THE RISKS, UNCERTAINTIES AND TOPICS OF DEBATE RELATED TO THIS TREND? (CONTINUED)

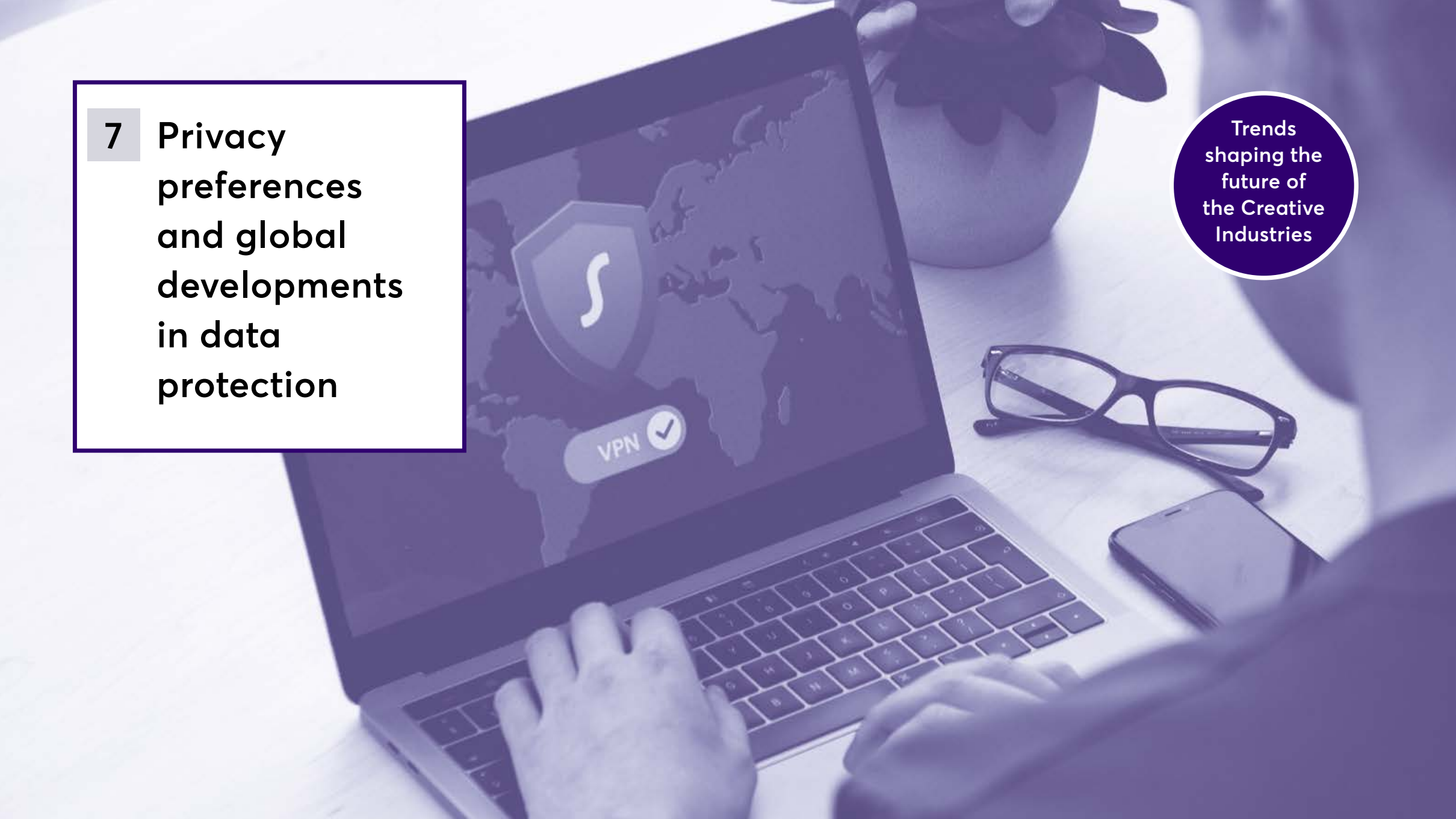
Ultimately, the balance between business success and commitment to ESG goals and the choices companies make about the balance are complex. Economies want excellent companies, not just companies that excel at ESG (Edmans, 2020). Specifically, there is a need to identify those ESG issues that are material to a company's financial performance as they vary from sector to sector. Some ESG activities improve financial performance by deepening stakeholder relationships, boosting innovation, reducing risk and enhancing firm reputation; but others do not. Firms that take a targeted approach – scoring high on material issues and low on immaterial issues – outperform the market. By contrast, indiscriminately investing in all ESG issues will fail to create long-run value (Khan et al., 2016). This matters for smaller creative businesses that may lack the expertise and experience necessary for the targeted integration of ESG into their business models. Creative businesses must also pay attention to dynamic materiality and the way in which issues that are not material today may become so in the future in order to stay ahead of risks and opportunities (WEF, 2020). A good example of this fluidity is the advertising and design industry's responsibilities around marketing foods that are high in fat, salt or sugar. The issue went from a marginal concern to a priority for many policymakers during the pandemic given that being obese or overweight was a major risk factor for severe Covid-19 (Rogers and Serafeim, 2019).

Material issues for the media sector, 2022



Based on desk research and interviews with stakeholders, the Responsible Media Forum (2022) identifies which issues are material to media companies (news media, broadcasters, educational and scientific publishers, entertainment and streaming companies). Materiality is defined as any factors that could have a significant impact – both positive and negative – on a company's business model and value drivers, such as revenue growth, margins, required capital and risk. Khan et al., 2016) find that publicly-listed companies that score high on material issues and low on material issues beat the market by a statistically significant 4.83%..

7 Privacy preferences and global developments in data protection



Trends shaping the future of the Creative Industries

Privacy has emerged as an important concern (up to a point)

WHAT IS THIS TREND?

There is growing concern over the use of online data and the growth of digital surveillance. These concerns are partly attributable to widening definitional boundaries of what is private and therefore off limits. For example, research finds that consumers are much less willing to reveal their income in an online survey than in the past (Goldfarb and Tucker, 2012). At the same time, there are many other areas where people are beginning to accept that privacy violations are an unavoidable aspect of modern life and display an increasing amount of fatalism about it (Black et al., 2018).

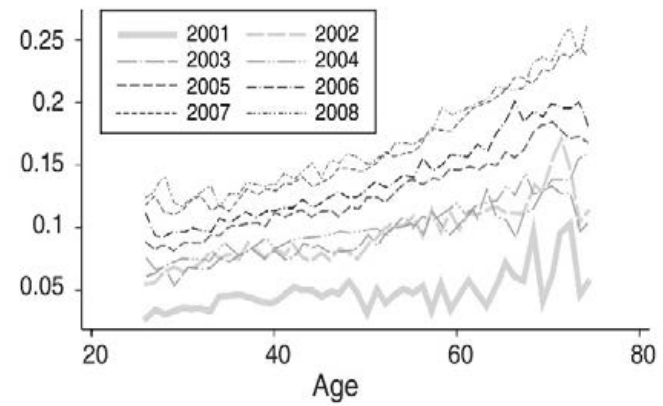
Privacy regulations are evolving, with a clear shift toward protecting consumers. EU's General Data Protection Regulation (GDPR), implemented in 2018, is the most ambitious attempt to regulate privacy and data governance. It provides EU residents with multiple data rights such as the right to access and delete their data. It also imposes responsibilities on firms like data auditing and data-breach notification. This is underpinned by strong sanctions: firms can be fined up to 4% of their global annual revenue, with Meta being hit in May 2023 with a record €1.2bn fine over the mishandling of EU-US data transfers.

Five years after implementation, GDPR has meaningfully changed the compliance environment for companies (CSIS, 2021). It has also had a domino effect around the world: to date, at least 20 countries from different regions have adopted laws that are influenced by the GDPR, including Brazil, Turkey, Kenya and South Africa. In addition, 14 countries that have obtained adequacy decisions from the European Commission because they provide a level of protection for personal data that is equivalent to the level of protection in the EU (UNDP, 2023). The situation also remains fluid in the US. At the time of publication, six states had passed legislation requiring companies to offer an opt-out on the collection and sale of personal data, as well as targeted advertising, with more states likely to follow in their footsteps in the future.

WHY DOES THIS TREND MATTER

Privacy and the data economy involve significant trade-offs. Without adequate levels of privacy, it is feared that individuals will be unable to accomplish a rich array of psychological functions necessary for their wellbeing: autonomy, contemplation, creativity, intimacy and recovery (Pedersen, 1997; Zuboff, 2018; Veliz, 2020). On the other hand, strict privacy laws may interfere with the ability to carry out medical research, commercial advances from machine learning, employment growth, public safety and even good governance (Aral, 2020). Research points to the GDPR harming firm outcomes, especially smaller and more data-dependent firms. For consumers, GDPR is associated with objective improvements in privacy as reflected in consumer surveys (Johnson, 2022).

Fraction refusing to reveal income by age and year



Source: Goldfarb and Tucker (2012).

⚠ WHAT ARE SOME OF THE RISKS, UNCERTAINTIES AND TOPICS OF DEBATE RELATED TO THIS TREND?

Regulation has fallen short of its goals due to a lack of enforcement. Under GDPR, the system to handle international complaints is viewed as inefficient and cumbersome. Specifically, the 'one-stop shop' process that requires the country in which a company is headquartered to lead any investigation has led to regulatory backlogs in some member states such as Ireland.

There are likely limits to the convergence of data protection regulation. In part, attitudes to privacy are highly contextual. When asked to put a 'price' on privacy, users reach very different conclusions depending on whether they are asked to disclose (give up) personal information or to protect (keep) it. Acquisti et al. (2013) find the inducement required to give up privacy is six times greater than inducement to keep it and is three times the ratio reported for regular private goods. This inconsistency arguably calls into question the adequacy of consent as an organising principle for regulation and the ability of users to make reasonable trade-offs when exchanging personal data for free services. Cross country differences in privacy attitudes further militate against convergence. Opposition to the sharing of personal data is related to income levels, though countries such as Poland, Indonesia and South Africa have higher levels of privacy concerns than predicted by income alone (Rho et al., 2018). Other commentators juxtapose a western tradition – grounded in Kantian ideas of individual autonomy – with alternative traditions in other parts of the world that view privacy as belonging to communities and groups (Venkataramakrishnan, 2021). However, it is important not to overdo cultural explanations. Thus, 'communitarian' Japan has some of the strongest privacy preferences in the world. In a similar spirit, talk about a Western-centric conception of privacy ignores intra-regional differences, notably, the tendency for continental Europeans to view privacy as a fundamental human right informed by memories of Nazism and communism in contrast to the UK and US that take a more laissez faire and instrumentalist approach. More generally, it ignores the richness and elasticity of non-Western political thought and how it addresses many similar themes around privacy, even if not articulated in the exact same terms (De Bary and Tu, 1999; Sen, 2006).

Can trade-offs be better managed? There is growing interest in new privacy-enhancing technologies – differential privacy, federated learning, on-device computation, zero-knowledge proof and secure multi-party computation that promise to mitigate certain trade-offs between privacy and the data economy.

To what extent do you agree or disagree that allowing companies to use data they collect about you…

(% Strongly or somewhat agree)

	Total	ARG	AUS	BEL	BRA	CAN	CHL	CHN	FRA	DEU	GBR	HUN	IND	ITA	JPN	MYS	MEX	PER	POL	RUS	SAU	ZAF	KOR	ESP	SWE	TUR	USA
Is something consumers should be able to refuse	62%	53%	72%	68%	60%	79%	62%	57%	71%	56%	75%	54%	56%	66%	51%	49%	52%	50%	63%	52%	54%	72%	63%	67%	75%	60%	75%
Is something consumers should be paid or rewarded for	54%	57%	56%	53%	59%	63%	64%	68%	55%	42%	57%	41%	55%	60%	41%	51%	53%	61%	50%	46%	56%	64%	43%	58%	55%	49%	61%
Helps them provide you with products, services and information that better meet your needs	41%	40%	35%	30%	52%	41%	35%	64%	27%	29%	40%	29%	58%	35%	27%	51%	44%	54%	36%	39%	51%	53%	35%	31%	36%	50%	44%
Helps you find/discover products, services and information that are relevant to you	41%	43%	36%	27%	52%	44%	38%	64%	26%	28%	38%	27%	62%	34%	28%	49%	45%	54%	35%	38%	55%	52%	35%	30%	32%	46%	44%
Helps you save time	35%	36%	31%	24%	47%	35%	30%	63%	24%	27%	36%	18%	55%	26%	22%	52%	38%	49%	29%	33%	48%	42%	35%	23%	26%	41%	34%
Helps you save money	28%	26%	23%	25%	38%	26%	23%	60%	21%	26%	25%	13%	50%	19%	18%	42%	29%	36%	19%	18%	44%	32%	24%	15%	13%	26%	28%
Doesn't really bother you	23%	22%	21%	15%	31%	21%	18%	49%	17%	21%	22%	16%	36%	22%	11%	39%	19%	15%	22%	19%	42%	21%	19%	15%	28%	26%	23%

Base: 18,813 adults aged 16-64 across Argentina, Australia, Belgium, Brazil, Canada, Chile, China, France, Germany, Great Britain, Hungary, India, Italy, Japan, Malaysia, Mexico, Peru, Poland, Russia, Saudi Arabia, South Africa, South Korea, Spain, Sweden, Turkey, United States. October-November 2018

Source: IPSOS/WEF (2019)

Environmental sustainability

Trends shaping the future of the Creative Industries

1 Climate change and its socioeconomic impacts

Trends shaping the future of the Creative Industries

Introduction: The risks from a changing climate are already present and growing

WHAT IS THIS TREND?

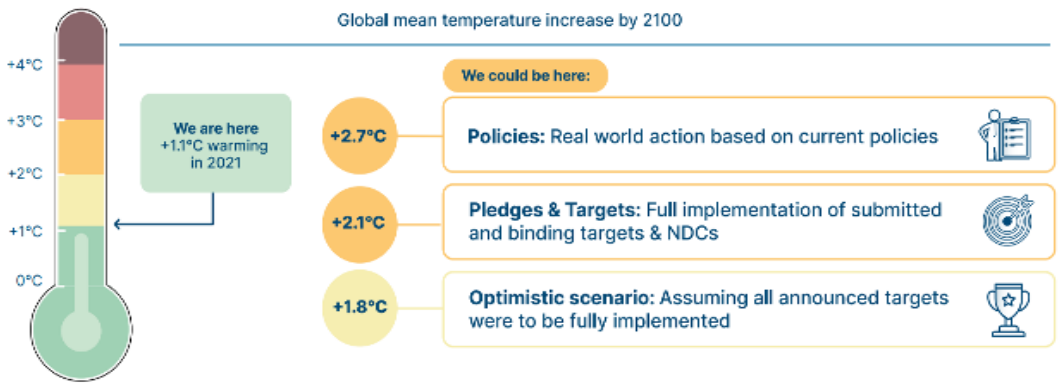
After more than 10,000 years of comparative stability spanning humans shift from hunter-gatherers to farming to the modern age, the planet's climate is experiencing substantial change. Global average temperatures have increased by about 1.1°C since the 1880s. In the Northern Hemisphere, the period 1983-2012 was likely the warmest 30-year period of the last 1400 years while the number of extreme weather events like wildfires and flooding has increased globally five-fold over the past 50 years at a cost of $3.6tn (WMO, 2021). At the time of publication, the month of July 2023 had just gone down as the hottest month on record, with more forecast to come.

WHY DOES THIS TREND MATTER?

The world is on course to miss the totemic 1.5°C climate target enshrined in the Paris agreement. The latest UN Emissions Gap Report (2022) observes that updated national pledges since COP26 make a negligible difference to predicted 2030 emissions. It adds that governments are far from the Paris Agreement goal of keeping global average temperatures below 1.5°C – the level beyond which the UN's International Panel on Climate Change concluded it will become increasingly difficult for humans to adapt. Instead, temperatures are currently on track for an average 2.8°C rise.

The socioeconomic costs of climate change are potentially large and rise disproportionately with increases in temperature. Rising mortality and crime as well as changes in labour supply, energy demand, and agricultural production along with their interactions are all major drivers of this nonlinearity (Hsiang et al., 2017). It is estimated that approximately half of global GDP ($44tn) is moderately or highly dependent on nature and its services and is therefore exposed to nature loss (WEF, 2020). Low income countries are particularly exposed to these costs despite contributing very little to climate change in aggregate terms (see chart on next page).

The gap to 1.5°C



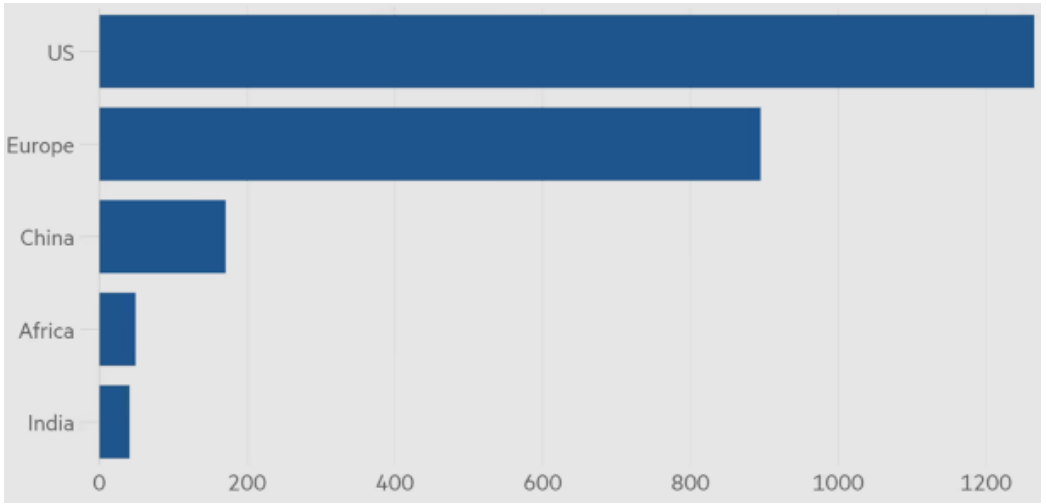
Source: Energy Transitions Commission (2022).

⚠ WHAT ARE SOME OF THE RISKS, UNCERTAINTIES AND TOPICS OF DEBATE RELATED TO THIS TREND?

Challenges and uncertainties remain over how policy will respond. Keeping the 1.5°C target on the table and achieving net-zero carbon emissions will require huge investments, notably in new energy systems but also ancillary activities such as green design and architecture. For example, the US Inflation Reduction Act of 2022 includes $369bn of subsidies to spur domestic clean energy manufacturing and deployment. Countries like Brazil have also launched ambitious green transition packages. It also calls for a global price on carbon with appropriate regulations, though today, only roughly 20% of all greenhouse emissions are subject to some kind of price. Policy challenges vary by country. In high-income countries and China, the challenge is one of politics and how transition costs will be shared among different groups, particularly low-income households and workers in pollution-intensive jobs; in developing countries it is also one of access to technology and finance. It is estimated that developing countries will need to spend some 4.1% of GDP on a 'big-push' investment strategy in green infrastructure by 2025 and subsequently 6.5% of GDP in 2030, up from 2.2% in 2019. The sums involved will require a significant ramp-up in external financing, including concessional finance from rich countries, both unilaterally and multilaterally.

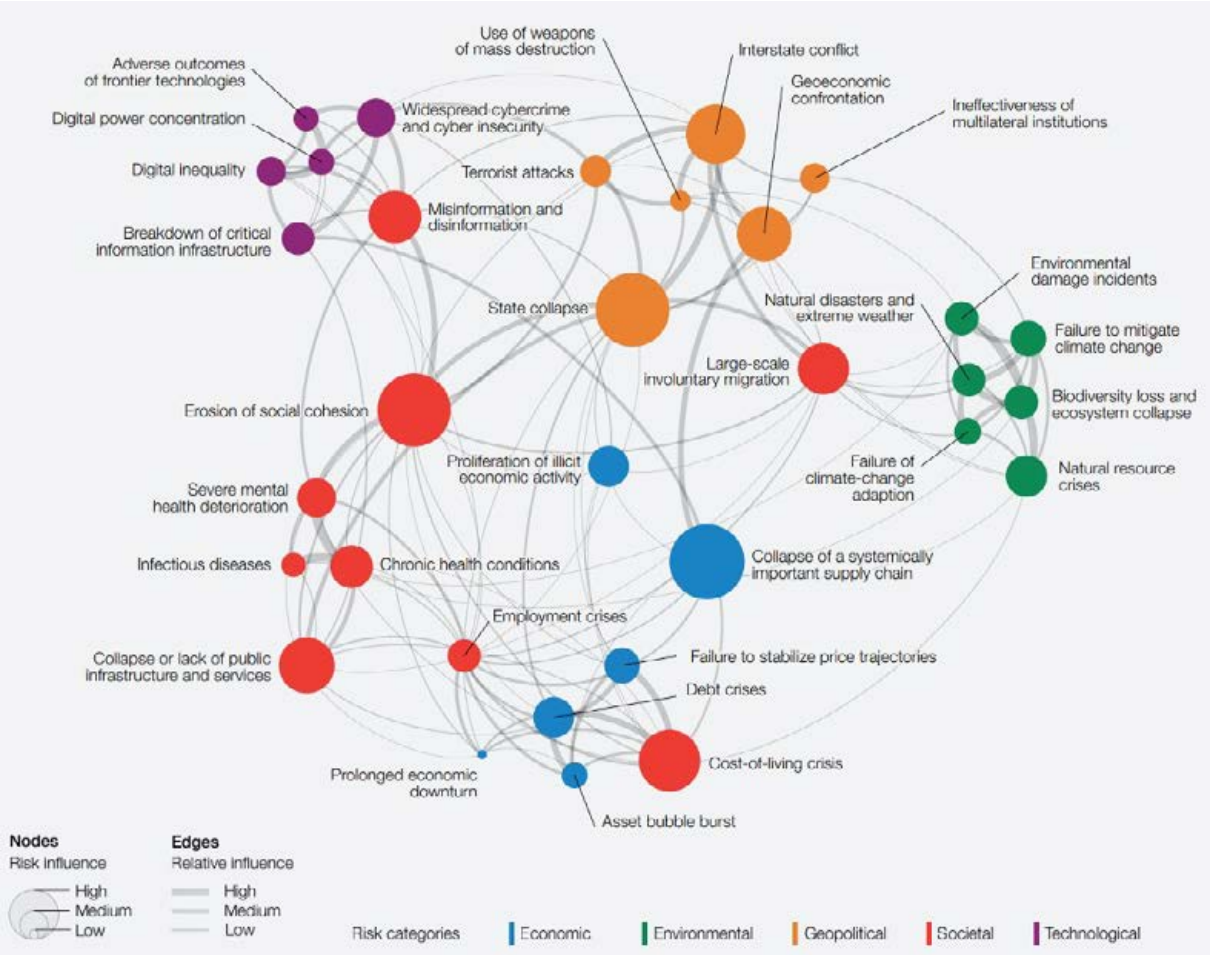
Potential for climate change to trigger wider shocks. Many scientists argue that the planet is dancing perilously close to a series of 'tipping points' at which changes in the climate become self-reinforcing and accelerate in damaging and irreversible ways (McKay et al. 2022). These include changes in the currents or conveyor belt that carry warmer water upwards from the tropics, the collapse of major biomes such as the Amazon rainforest or coral reefs, and runaway carbon release from thawing permafrost. Some components of the world's climate appear closer to the brink than others, notwithstanding uncertainty about the precise timing and path of these changes (Mckay et al., 2022). Against this backdrop, the historian Adam Tooze (2022) argues we are living in the age of the polycrisis in which concurrent shocks and interconnected risks combine to create a crisis even worse than the sum of its parts. In the World Economic Forum's annual survey of global experts and leaders, the failure to deliver on climate action is ranked as most critical long-term risk with the highest potential to propagate shocks to other socio-economic systems. Low income countries that are dependent on 'dirty industries' like commodities are the most exposed to these risks (see chart on next page and also on page 186).

Cumulative per capita CO emissions until 2021 (tCO2/capita)



Source: Energy Transitions Commission (2022).

Global Risks Effects 2022



Source: WEF (2023).

2 Environmental footprint of the creative industries

Trends shaping the future of the Creative Industries

Creative subsectors like fashion have a large environmental footprint

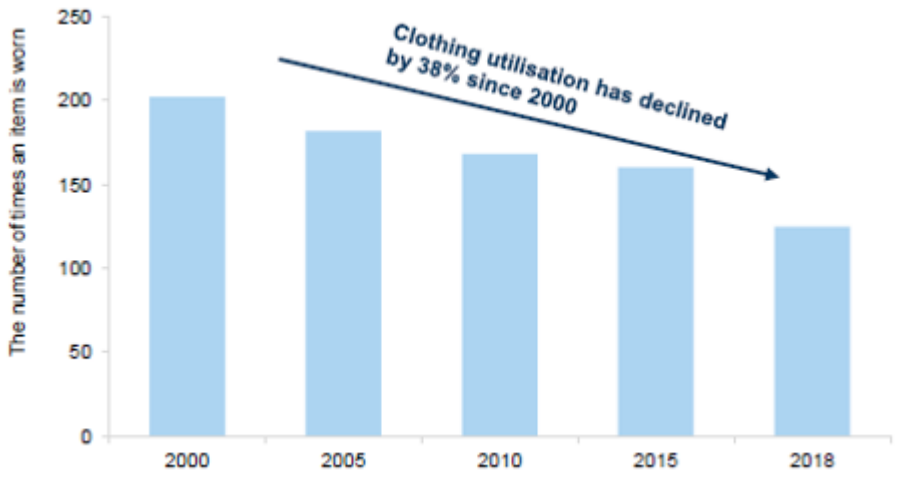
WHAT IS THIS TREND?

There is increasing attention on how businesses can reduce their environmental impacts and embed sustainable behaviours in their organisations and work practices. An essential step to meeting these challenges and one with particular relevance to the creative industries is the transition to a circular economy that can help decouple economic growth from resource consumption. With global GDP projected to more than triple between 2017 and 2060, global materials use is projected to almost double even after taking into account offsetting organisational and technological trends (OECD, 2019). While efforts to address climate change have focused on a transition to renewable energy, supported by energy efficiency, they are only part of the solution. Nearly 45% of all emissions come from how goods are produced and used (Ellen MacArthur Foundation, 2017). This makes it imperative that businesses design products that are built to last while finding ways to extend the useful life of raw materials.

WHY DOES THIS TREND MATTER?

Parts of the creative economy – notably fashion – will need to decarbonise much faster than others. The industry – worth $1.3tn annually – is responsible for 10% of annual global carbon emissions – more than all international flights and maritime shipping combined. In addition to emissions, the fashion industry uses 93bn cubic meters of water each year – equivalent to consumption needs of 5mn people while 20% of wastewater globally comes from the treatment and dyeing of textiles.

Number of times an item is worn



Source: Goldman Sachs (2022).

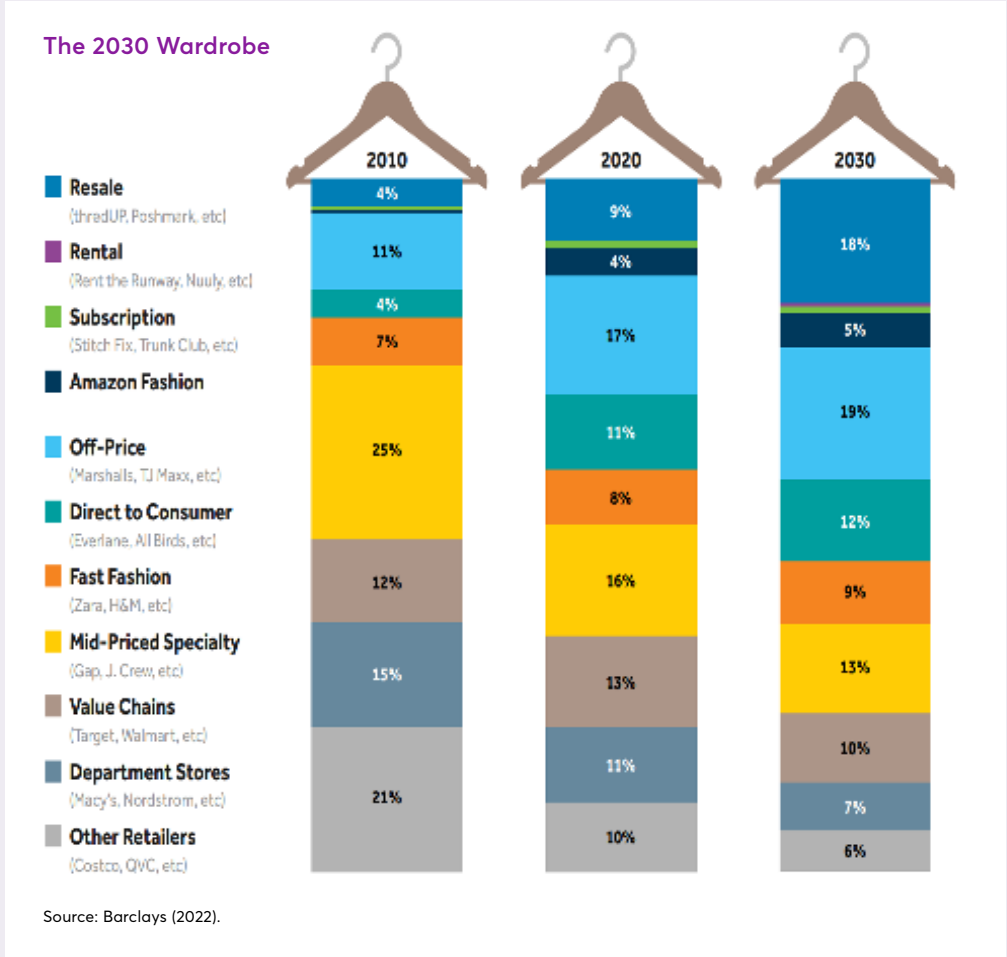
WHY DOES THIS TREND MATTER? (CONTINUED)

Product waste is an endemic feature of the fashion industry reflecting growing volumes, faster product cycles, under-utilisation and weak incentives for end-of-life disposal. Total textile waste has exploded 8-fold since 1960, with only 15% being recycled and 85% being incinerated or sent to landfills (Goldman Sachs, 2023). This trend has been exacerbated by the rise of fast fashion and the demand for inexpensive and widely available of-the-moment garments. The average person today buys 60% more clothing than in 2000 but keeps each garment for half as long. For their part, newer brands like Zara, Uniqlo and Forever 21 can churn out as many as 50-100 micro-collections a year. High-end brands have also contributed to waste, often preferring to destroy surplus inventory rather than cheapen their brands by marking it down or donating it. The practice is sufficiently widespread that in 2020 the French government took the radical step of banning companies from destroying unsold or returned items (Karasz, 2019). The collective impact of these practices is substantial: the Ellen MacArthur Foundation (2017) estimates that $500bn is lost each year due to clothing underutilisation and the lack of recycling. This is driving interest in solutions that can not only increase asset utilisation but also reduce demand for resource extraction in the first place:

- **New business models such as resale and rental**. In 2019, the resale/rental market grew 25x faster than the broader retail sector and is projected to grow to nearly twice the size ($80bn) of the fast fashion market ($43bn) by 2030. To date, China has exhibited the greatest appetite for resale while the UK has displayed the most scepticism. The rise of millennial consumers who are more price-sensitive, style-oriented, and environmentally conscious has been another catalyst for resale and re-use purchasing options. This is particularly true as the drop production model becomes the de facto operating model for the industry: through the resale market, consumers have the opportunity to acquire items that were initially part of limited edition 'drops' or classic luxury designs that are no longer available. WRAP (2017) estimates that a 10% increase in second-hand sales could cut carbon emissions per tonne of clothing by 3% and water use by 4% if they extended garment life by 50%.

WHY DOES THIS TREND MATTER? (CONTINUED)

- The growth of the resale market, including the participation of luxury brands is supported by improvements in authentication capabilities. Large players are investing in both human capital and technology to gain consumer trust. For example, Entrupy AI – a B2B solution – evaluates the images captured by resellers against millions of records in its extensive and growing database to verify an item's authenticity. The technology now works across 17 luxury brands and 70% of the top-selling sneaker models, including highly desired Jordans and Yeezys. LVMH, meanwhile, has collaborated with other luxury names Richemont and Prada to develop the Aura Blockchain Consortium. Each item is recorded on the Aura ledger during manufacturing and assigned a unique digital code so that customers can follow its entire lifecycle with confidence and without need for third-party verification. Other examples include Eon's digital passports, Fashionphile's proprietary devices and Poshmark's Suede One.



Source: Barclays (2022).

New practices are emerging in the fashion industry, driven by both economic and sustainability factors

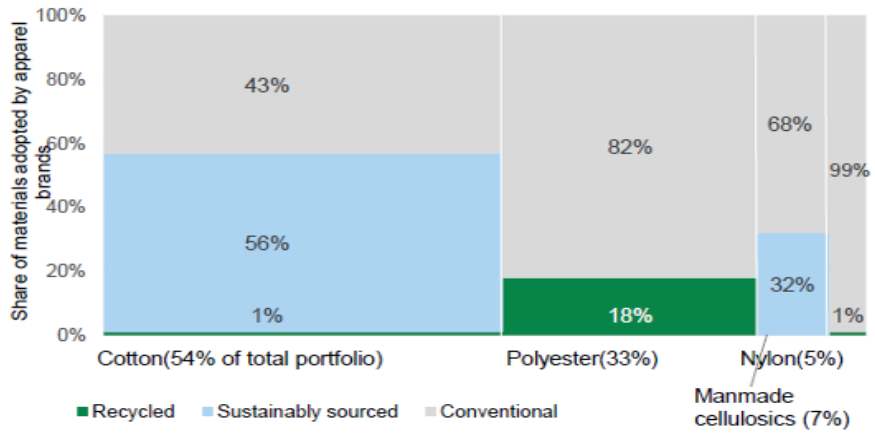
WHY DOES THIS TREND MATTER (CONTINUED)?

Potential to scale up recycling. The current clothing supply chain sees only 3% of clothing made from recycled materials; however, a number of companies are stepping up efforts. H&M's Garment Collection Programme incentivises customers to return bags of unwanted clothes in return for store discount vouchers while Patagonia's Worn Wear recycling scheme permits customers to trade in unwanted Patagonia products, with the company repairing and reselling returned garments to extend the useful life. Ongoing R&D can support further improvements in recycling methods. Researchers have developed processes to take discarded clothing, dissolve and decompose the natural fibre in it to create new biodegradable raw materials such as circulose that can be integrated back into the supply chain, replicating natural cotton. Legislation is also spurring investment. Among other developments, Extended Producer Responsibility laws are making brands financially responsible for the collection, sorting and recycling of textiles.

The broader materials innovation has shown promise. Allbirds, the billion dollar start-up, makes what is described as the world's most comfortable shoe, using natural materials like merino wool and eucalyptus fibre. Other examples of new innovative materials include BLOOMTM (flexible foam partly made from algae biomass), Orange fibre (made from citrus peel left over from juice production) and Piñatex (made from pineapple leaf fibres, a byproduct of agricultural processes).

The children's clothing brand Petit Pli has designed a fabric made from recycled bottles that grows with a child from birth until their first birthday or from 9 months to 4 years, keeping clothing in use for longer. More speculatively, nanotechnologies may one day endow materials with the ability to change their physical or optical properties in response to the external environment. The MIT Self-Assembly Lab envisages a future in which wardrobes no longer need to be rearranged seasonally but the same item of clothing can provide warmth in the winter and relief from heat in the summer.

Share of sustainable materials in total portfolio among surveyed brands, 2019 Material Change Index (MCI)



Note: Only 39% of the raw materials used by fashion brands in 2019 MCI are recycled or sustainably sourced.
Source: Goldman Sachs (2022).

⚠ WHAT ARE SOME OF THE RISKS, UNCERTAINTIES AND TOPICS OF DEBATE RELATED TO THIS TREND?

The fashion industry lacks good disclosure on measurable waste metrics. The Fashion Transparency Index found that in 2020, only 4% of the 250 of surveyed brands disclosed the total volume of product/textile waste generated, and only 3% disclosed the volume destroyed. Meanwhile, only 18% of the brands had communicated their plan to develop circular solutions, with only 2% publishing data on the proportion of products designed to enable closed loop recycling at the end of the product's life. Some exceptions exist: Kering publishes an annual Environmental Profit & Loss (EP&L) statement to quantify the impacts of its operations. The tool is a first of its kind for the fashion industry. However, more needs to be done industry-wide to promote greater transparency, not least as supply chain impacts are concentrated in regions with limited environmental oversight, placing greater responsibility on brands to engage proactively on these issues.

Practices like recycling need to overcome substantial hurdles before they become mainstream. The fashion industry is very reluctant to give up freedom of choice inherent in virgin materials and tackle the challenges of limited volumes, quirks and imperfections inherent in used fabric, though this adjustment may be easier for smaller brands and made-to-order ranges. This is in addition to the fact that recycling final goods back into raw materials often requires a nontrivial amount of additional energy to return raw materials back to new use. Finally, much of the collecting and sorting infrastructure in place is for resale which is very different to sorting for recycling.

Doubts remain over resale's green credentials in its present form. Barclays (2022) finds that while most consumers (73%) view resale platforms as an environmentally friendly alternative to traditional retail or e-commerce, only 11% consider environmental impact when purchasing fashion items. More importantly, only approximately 20% would purchase resale fashion as a substitute for first-hand items, suggesting that resale may actually encourage rather than dampen consumption in the absence of more fundamental behavioural changes.

Beyond fashion, the creative industries contribute daily to problems of sustainability

WHAT IS THIS TREND?

There is a growing willingness to look beyond the usual suspects and look much closer to home and understand the myriad ways in which the activities of the creative industries contribute to climate change.

WHY DOES THIS TREND MATTER?

Creative businesses have often overlooked the impact that their activities have on sustainability issues. As knowledge-intensive services, they consume less energy than manufacturing while the intangible assets on which they rely tend to have a longer useful life than investments in property, plant and equipment (PP&E).

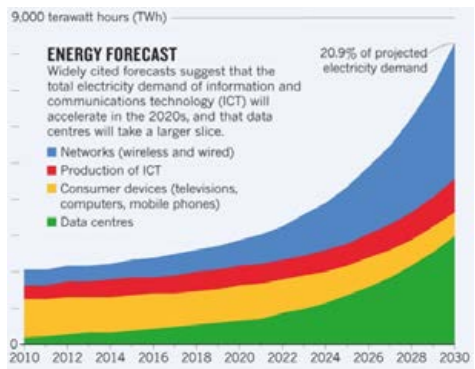
But these impacts are not negligible. Notably, many creative activities are data-hungry in terms of production and consumption. Video accounts for over 60% of total downstream internet traffic worldwide, led by Netflix and YouTube. Other work finds that banning high-definition colour cameras on phones could alone cut traffic in Europe by 40% (Nature, 2018). The resulting impact on the environment is sizeable: YouTube's annual carbon footprint is about 10Mt CO2e – approximately the output of a city the size of Glasgow. One corollary is that even a simple design tweak such as shifting YouTube music videos to audio only when playing in the background could significantly reduce emissions (Priest et al., 2019). This pressure is unlikely to abate: by 2030, electricity use by the ICT sector could exceed 20% of the global total due to demand growth from data centres and networks. To date, this demand has been kept in check by improvements in energy efficiency such as server virtualisation, increased storage drive densities, use of faster port technologies, the shift to larger and more efficient cloud and hyperscale data centres and investment in new cooling systems. But many of these actions are one-off gains, meaning that further cuts will be harder to achieve. New demands from emerging technologies, including AI, blockchain and the development of the metaverse raise increasing concerns about the overall environmental impacts of the sector over the coming decades. For example, it is estimated that training an AI model emits 57 times more CO2 than a human in a year or five times more CO2 than a car over its lifetime (Strubell et al., 2019).

Illustrative GHG emissions for Creative Industries activities

Activity	Estimated average GHG emissions
Advertising commercial production	100 tonnes
£50m feature film production	2,840 tonnes
Annual emissions of UK festivals (excluding audience travel)	25,000 tonnes
Annual emissions of London theatres (excluding audience travel)	50,000 tonnes
Annual emissions of UK music touring	85,000 tonnes
Annual emissions of Spotify streaming service (2021)	353,054 tonnes

Note: Only 39% of the raw materials used by fashion brands in 2019 MCI are recycled or sustainably sourced. Source: Goldman Sachs (2022).

Expected case projection for electricity demand in 2030



Source: Jones (2018).

Barriers to progress and ways forward

⚠ WHAT ARE SOME OF THE RISKS, UNCERTAINTIES AND TOPICS OF DEBATE RELATED TO THIS TREND?

Structural features of the creative industries pose distinctive challenges for mitigation and adaptation efforts. For example, the infinite variety of creative outputs and the countless number of ways in which an artist can choose to express themselves mean that film and TV production and festivals often use highly idiosyncratic props, clothing and design sets with little reuse value. This is reinforced by the motley crew principle, namely the tendency for complex creative offerings to depend on a large number of diversely skilled and often geographically dispersed inputs, increasing travel demands.

The dominance of micro-businesses in the creative industries also means that many lag behind their larger peers in the adoption of sustainability practices (OECD, 2012; European Commission, 2020). This gap reflects a number of barriers, including lack of information and awareness, skills gaps, insufficient capital or complementary assets. Smaller businesses often operate on tight, volatile margins with fluid and transient project-based working that makes it harder to capture the benefits of long-term investments in energy-saving technologies. Securing finance for these investments can be difficult due to the reliance on intangible assets as collateral. For many subsectors recovering from the pandemic and navigating a cost-of-living crisis, there is a risk that environmental action takes a backseat to viability and revenue recovery without policy support.

Sustainable production practices at NBC Studios

Source: NBC (2018).

⚠ WHAT ARE SOME OF THE RISKS, UNCERTAINTIES AND TOPICS OF DEBATE RELATED TO THIS TREND? (CONTINUED)

Doubts linger about the ability of audiences and consumers to drive sustainable change. In sectors such as film and TV, consumers are too detached from the production process to influence decisions, with the closest point of contact being downstream in cinemas. At the same time, there are limits to how environmentally mindful consumers will vote with their wallets. Consider e-commerce where retailers have competed aggressively on fast delivery, conditioning consumers to expect speed and convenience, even though shorter delivery times entail greater use of air freight (more polluting) instead of overland travel (less polluting) and give logistics companies less room to optimise routes. Despite the fact that companies are now rewarding consumers for being patient or accepting delivery dates where efficiencies are greatest, effective mass adoption remains some way off.

But there are also grounds for optimism. PEC (2022) observes that many subsectors have taken the initiative themselves, with a growing number of academic-industry collaborations that are tackling the very specific and practical needs of business. These initiatives can be found even in some of the creative economy's most challenging corners like live music and film and television. At COP26, Massive Attack was the first music act globally to commit their touring group to UNFCCC 'Race to Zero' accreditation, making plain and transparent their commitment to zero carbon operations. It also commissioned the Tyndall Centre for Climate Change Research to produce a roadmap for live music to align it with the Paris climate targets. Suggestions cut across every area of activity – routing, venues, transport modes, set, audio and visual design, staffing and promotion right down to 'plug and play' models for venues that would reduce the burden of transporting gear and the standardisation of equipment worldwide – all implemented collaboratively to support smaller venues struggling with more stringent regulation (Tyndall Centre, 2021).

The film and television industry has also taken action on climate change. In the UK, BAFTA – in conjunction with broadcasters and production companies – developed albert, an online tool that calculates the amount of greenhouse gases emitted into the atmosphere as a direct result of a production. The British Film Institute's Film Fund for independent productions now requires carbon footprinting for all funded productions. Over the past decade, more than 1,300 television production companies have used the tool with 7,500 production footprints calculated. This experience also underscores the importance of public funding and leverage enjoyed by government in driving wider policy concerns and priorities.

3 Opportunities presented by climate change for creative businesses

Trends shaping the future of the Creative Industries

Green architecture and design, among other subsectors, are positioned to take advantage of opportunities presented by climate change

WHAT IS THIS TREND?

The transition towards a low-carbon economy will also create winners as the structure of the economy migrates towards more resource-efficient activities. While the greening of the economy and labour markets will create adjustment pressures in 'brown' sectors with high environmental footprints, new opportunities will emerge in activities tied to green growth.

WHY DOES THIS TREND MATTER?

Activity in the low carbon economy is spread across a wide range of industries. Within the creative economy, architecture plays an indispensable role in the built environment. Estimates vary but the entire construction value chain accounts for as much as 40% of all global carbon emissions. The green buildings sector is growing quickly at an average of >10% annually and many industry participants anticipate doing more than 60% projects green in the next five years thanks in part to a growing recognition of the commercial benefits of green buildings (Fuerst et al., 2014; Ramboll, 2019; Dodge, 2021). The prize is even larger in emerging markets where the sector represents a $24.7tn investment opportunity by 2030 (IFC, 2019).

Sustainable production practices at NBC Studios

	Sub-Saharan Africa	Middle East & North Africa	South Asia	East Asia Pacific	Europe & Central Asia	Latin America & Caribbean	
Education	73.8	122.6	41.2	1,191.4	50.6	269.6	1,749.2
Healthcare	38.7	85.8	13.5	320.6	30.2	81.1	569.9
Hotels & Restaurants	11.9	35.2	38.8	1,345.7	23.6	54.2	1,509.4
Institutional/Assembly	27.6	50.2	17.3	733.7	24	26.7	879.4
Office	49.6	65.3	61.7	2,566.8	40.8	111.9	2,896.2
Retail	31.4	60.7	87.6	844.8	39.1	84.2	1,147.9
Transport	5.3	7.4	3.2	26.2	3.8	11.9	57.8
Warehouse	20.1	22.5	18.2	97.4	7.1	25.1	190.5
TOTAL COMMERCIAL	258.4	449.7	281.5	7,126.6	219.2	664.7	9,000.2
Multi-Unit-Residential	96.6	158.1	542.9	7,555.9	201.3	745.2	9,300
Single-Family-Detached	413	528.4	933.8	1,331.7	460.2	2,751	6,418.1
TOTAL RESIDENTIAL	509.6	686.5	1,476.7	8,887.6	661.5	3,496.2	15,718.1
GRAND TOTAL	768	1,136.2	1,758.1	16,014.2	880.7	4,160.9	24,718.3

Source: NBC (2018).

WHY DOES THIS TREND MATTER? (CONTINUED)

Buildings that integrate sustainable architecture and high design are particular beneficiaries of these trends. Bahrain World Trade Centre, Copenhill in Denmark, Taipei 101 and Pixel Building in Melbourne among others are impressive examples of this integration in action. There is growing interest in disciplines, such as biomimicry that draw on solutions inspired by nature and translate its principles to design and architecture. It is an elegant shortcut towards the optimisation of design given that these solutions are themselves the product of continuous selection and mutation processes over nearly 4 billion years of evolution. For example, engineered living materials can contribute to sustainable and resilient architecture – whether in terms of basic building blocks (self-healing concrete and self-growing bricks), insulation (active membranes), active elements (actuators and energy generators) or protective surfaces (coatings and paints) (Sandak, 2023).

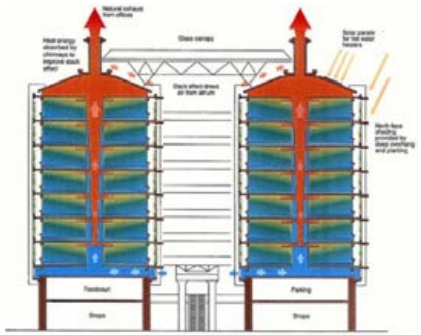
Another promising area is biophilic design that incorporates natural elements such as daylight, plants and water features into living and working environments. Something as simple as having 10 more trees in a city block, for example, is not only good for the environment but improves perceived health status that is comparable to an increase in annual income of $10,000 or being 7 years younger (Akbari et al., 2001; Nowak et al., 2014; Kardan et al., 2015). Policymakers and architects are turning to these practices as cities worldwide try to figure out how to adapt to a new era of extreme heat. Roughly 200mn people in cities today are at risk from extreme heat, a figure that is projected to grow eightfold by 2050 (Mooney et al., 2023). Many would benefit from the incorporation of green spaces, water features and ventilation corridors that can keep areas cool naturally and protect residents (Li, 2022).

With 85% of current housing stock in countries like the UK predicted to still be in use by 2050, there may also be opportunities for architecture practices to embrace retrofitting ('adaptive reuse'). There are notable examples of industrial structures and older buildings being transformed into residential and commercial spaces, including Vienna's Gasometer City, London's Battersea Power Station, and Zurich's railroad viaducts.

Design is viewed as a cornerstone for green interventions more generally. Research finds that a significant amount of all product-related environmental impacts is determined earlier during the design phase of a product (EU, 2018). The adoption of digital tools such as Building Information Models (BIM) that allow designers to model and visualise in 3D the environmental impacts of an asset over the life cycle before the project physically starts on site, reducing supply chain inefficiencies, costly reworks and clashes will be critical to unlocking these benefits.

Some countries are looking to creative industries as a tool for diversification. Most ambitiously, Saudi Arabia has made video games a core part of its Vision 2030 plan and is planning to invest $38bn in gaming and esports as it seeks to reduce its dependence on oil. The kingdom aims to become home to 250 gaming companies and studios and create 39,000 jobs with the industry contributing 1 per cent to GDP by 2030. Its sovereign wealth fund, the Public Investment Fund (PIF) has already acquired sizeable stakes in US and Japan-based games makers like Nintendo with the hope that these linkages will catalyse domestic innovation, though they have also raised questions about the control and ownership of entertainment assets (Mochizuki and Allan, 2022; Mello-Klein, 2022).

Eastgate Centre in Harare



The Eastgate Centre, a 350,000 square feet office and shopping complex in Zimbabwe, is inspired by the fluid dynamics of termite mound that also approximates the physics of gas exchange in the lung. The building has no conventional air-conditioning or heating yet manages to stay regulated all year round. The ventilation system costs one tenth of standard air-conditioning systems and uses 35% less energy than comparable buildings. Source: Jacobsen (2014); Singh et al. (2019).

The Circular Economy in wider action

Inner-loop Solution	Example of inner-loop companies / service offerings
Rent & Share	Rental companies such as Rent the Runway, Herc Holdings, URI, Ashtead Group, McGrath RentCorp maintain inventories that are rented and shared between consumers. This increases utilisation of products but still requires companies to purchase new items to maintain inventory. Other private companies such as My Wardrobe HQ, Turo, BlaBlaCar, and Hiyacar connect individuals for peer-to-peer rentals and sharing which eliminates new purchases in the rental industry.
Maintain & Prolong	Digitized Maintenance Contract from Honeywell provides analytics on critical equipment issues that may require repair or parts replacement. Impinj, a manufacturer specialises in radio-frequency identification devices and systems, uses RAIN RFID to develop IoT solutions to connect physical items to the cloud, helping to optimize production levels, increase efficiency of systems and reduce waste. Manufacturers in the Industrials space such as Goodyear (tire), Signify (lighting), and Konecranes (cranes and lifting), offer a preventive and predictive maintenance approach supported by digital tools, which can help predict failures, optimize the need for maintenance/spare parts, minimise downtime and extend the lifecycle of equipment. In addition, these companies analyse data received to prevent similar failure and improve design in the future.
Reuse & Redistribute	Fashion resale platforms such as Depop, The RealReal, Vinted, Poshmark, ThredUp and Vestiaire Collective. Business model that sells overstocked or unsold inventory from other businesses, or products traditional stores will no longer sell but are still usable also fit into this theme, such as Grocery Outlet and other outlet stores, if new products are not created for the outlet to sell. Similarly, Oddbox and Misfits Market, which sell boxes of fruits and vegetables that are not traditional in appearance but are of the same quality to eat. Reusable packaging is another important contributor to the theme, including 1) companies that sell refill materials in lighter packaging (i.e. L'Occitane, Aesop); 2) companies that produce reusable packaging and goods (i.e. Tupperware); or 3) companies that provide reusable packaging to businesses (i.e. Repack, Loop Global).
Refurbish & Remanufacture	The Restory provides aftercare for luxury fashion including cleaning, conditioning, re-heeling, repairs, etc. Back Market sells second-hand refurbished tech products including cell phones, laptops, tablets, smart watches, and headphones. A number of companies offer takeback programs that involve refurbishment and reselling, such as Patagonia's Worn Wear program and Reformation's partnership with thredUP. Equipment manufacturer Caterpillar's CAT Reman and Rebuilt programme will clean, inspect, salvage and remanufacture returned components to original factory specification, along with enegineering updates.

Source: Goldman Sachs (2023).

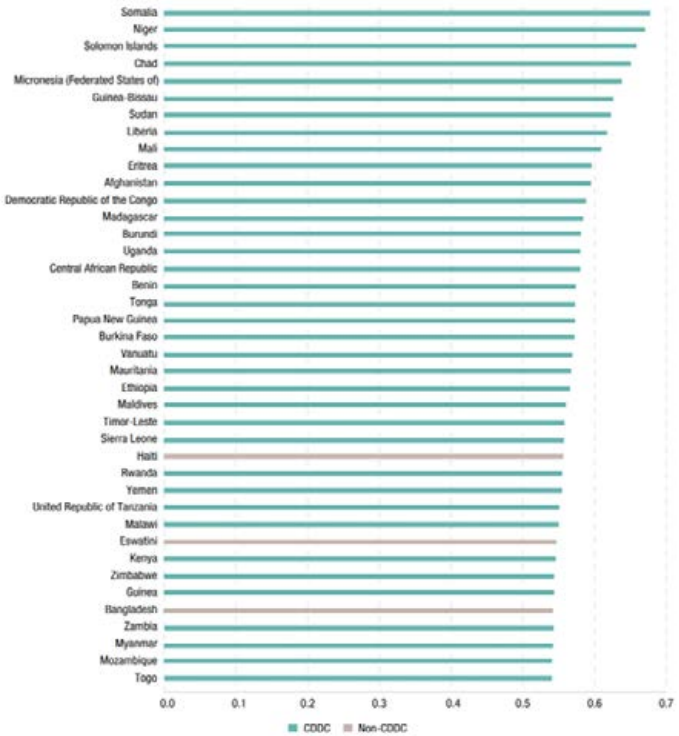
Barriers to progress and ways forward

⚠ WHAT ARE SOME OF THE RISKS, UNCERTAINTIES AND TOPICS OF DEBATE RELATED TO THIS TREND?

Despite ambitious targets for green buildings, they are still only a small part of the construction market. Global investments in green buildings accounted for $423bn of the $5tn spent on building construction and renovation in 2017 and an even smaller share of the total value of global real estate ($217tn). A series of barriers impede the development of a healthy pipeline of green properties and wider adoption of green construction, including: developer reluctance to shoulder the additional up-front costs of green building design, when the cost savings will only flow to future owners; mismatch between building longevity and the relatively short holding periods for real estate assets in investment portfolios; minimal landlord incentives to invest in energy-efficient fittings because the tenant is paying the utility bill; and subsidised or government-controlled energy prices (Azhgaliyeva and Rahut, 2022). Both design and architecture business can find themselves at the end of a very long value chain meaning they have limited influence over the delivery and outcome of projects that are ultimately at the discretion of the client.

Limits to economic diversification. The historical record of commodity-dependent countries diversifying away from 'dirty' industries is not auspicious. Many countries with abundant mineral and fossil fuel resources have struggled to use the income from these assets to diversify the wealth base of their economies – Norway and Botswana being notable exceptions (Frankel, 2010; Venables, 2016). Part of the problem is economic: coping with massive fluctuations in export earnings or private credit booms is challenging for any country. Another constraint is weak governance. Resource rents enable government to postpone economic reforms while distorting public spending to favour partisan groups. The problems faced by these countries are often systemic, implicating the social contract between citizens and government. In some cases, citizens are used to the state providing public sector jobs, free education and healthcare and subsidised fuel to all citizens. Public sector jobs are typically more stable and lucrative than the private sector, weakening some of the motivation to pursue entrepreneurship and innovation in the absence of greater coordination. The resulting institutional inertia may limit what is feasible. Policymakers need to think carefully about the relatedness between existing strengths and new opportunities, recognising that bold moves into unrelated industries and capabilities are a much riskier undertaking (Hidalgo, 2022).

Climate change vulnerability score, 40 highest ranked countries, 2017



Countries in green are commodity-dependent developing countries (CDDC). Vulnerability scores based on the ND-GAIN Index developed by University of Notre Dame's Global Adaptation Initiative. Source: UNCTAD (2019).

4 Role of arts and creative industries in mobilising climate change action

Trends shaping the future of the Creative Industries

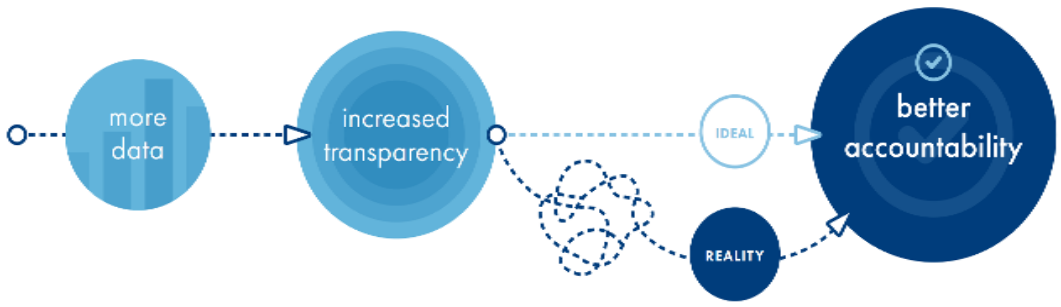
The role of arts and creative industries in climate change action

WHAT IS THIS TREND?

Artists and creatives have long been at the forefront of driving social change. Examples include Dadaism highlighting the absurdities and atrocities of World War I; the civil rights movement and struggle against apartheid and fall of the Berlin Wall. Throughout history, subcultures have employed the arts and fashion as a way of resisting the dominant culture of the mainstream. More generally, the arts have provided a context for negotiating the human condition – for better understanding our place in the world, interrogating it and potentially changing it. In this respect, the arts are not simply decorative but serve a moral-ethical function. Writing about the power of fiction (specifically Russian literature), George Saunders observes: "[it] changes you when you read it, makes the world seem to be telling a different, more interesting story, a story in which you might play a meaningful part and in which you have responsibilities" (Saunders, 2021).

There is a growing stock of creative content with environmental messaging at its core. The UN-led initiative 'The Playing For The Planet' aims to inspire young people to learn and act in support of the environment through video games (UN, 2021). Consider award-winning games like *Extinction is Forever* in which the player assumes the role of a small fox escaping from a burning forest or UbiSoft's action-adventure game *Skull & Bones* that confronts players as aspiring pirates with the consequences of overfishing and ocean exploitation that can affect their progress. In the film sector, UK BFI's 'Planet Placement' programme that helps creatives explore ways to place the planet into their work and provides guidance on how to avoid normalising unsustainable behaviour.

More data does not necessarily equal better decisions and outcomes



Even in areas as technocratic as government fiscal reporting and public financial management, there is an increasing recognition that having more detailed and sophisticated data can be counterproductive. Source: World Bank (2022).

WHY DOES THIS TREND MATTER?

Understanding the impact of climate change intellectually is not the same as feeling its presence in daily life (Burke et al., 2018). Neuroscience shows that decisions are often made based on emotion, and not logic – and art is a powerful mechanism for influencing the emotions. Smith and Leiserowitz (2014) find that emotions are stronger predictors of support for climate change policy than sociodemographics, ideology and political party. By contrast, fact-based or technical arguments may actually increase public polarisation on controversial policy issues (Whitmarsh et al., 2013; Morris et al., 2019).

Researchers now have a better idea of what works. For example, emotions such as worry are strongly associated with policy support for climate change, followed by hope and interest. This is consistent with other studies that find sadness-inducing videos lead to more time spent on an energy-footprint calculator and greater donations to environmental NGOs (Schwartz and Loewenstein, 2017). By contrast, fear has a more ambiguous impact on decisions. Since climate change is perceived a distant threat, it will not necessarily trigger the desired fear response. Fear-based communications also emphasise worst-case scenarios that can cause issue avoidance or even a backlash, leading to disengagement or dismissal of the issue (O'Neill et al., 2010; Smith and Leiserowitz, 2014; Feldman and Hart, 2018). Some activist art also appears better at inspiring public engagement and communicating environmental issues than other artworks. Sommer and Klöckner (2019) conduct a cluster analysis of people's emotional and cognitive reactions to a number of environment-related pieces of art exhibited at ArtCOP21 in Paris. They find that artwork that makes causes and solutions of human behaviour visible, is exhibited outside and depicts nature's sublime qualities elicited the strongest reactions and made people reflect more on their role in climate change than artworks that did not possess these characteristics.

Banksy mural entitled 'I don't believe in global warming' (2009) near the Oval bridge in Camden, London

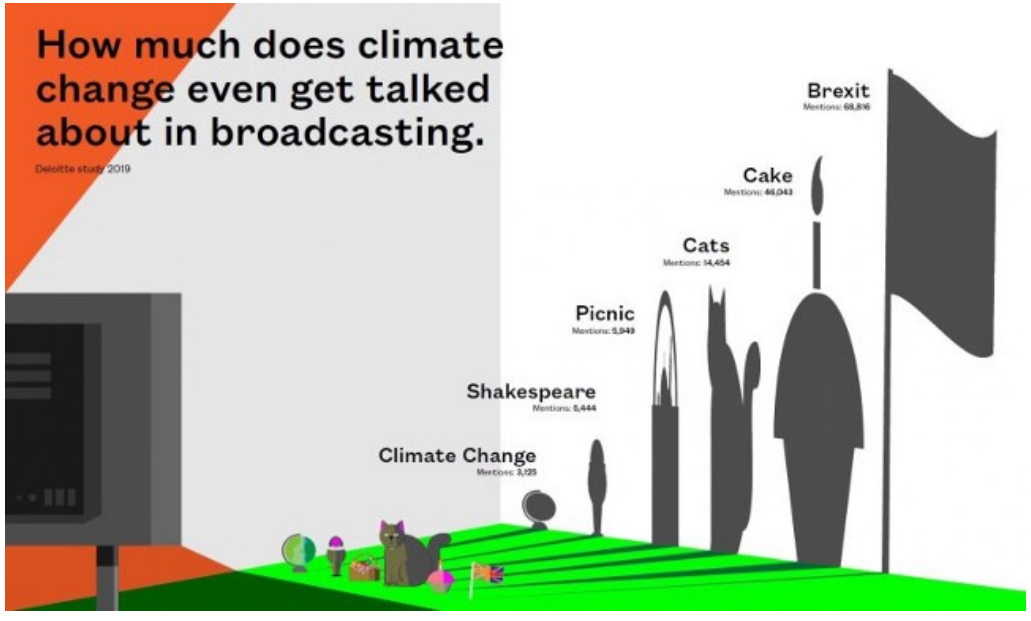
⚠ WHAT ARE SOME OF THE RISKS, UNCERTAINTIES AND TOPICS OF DEBATE RELATED TO THIS TREND?

This trend is still in its infancy. Analysis based on subtitle data finds that words like 'cats', 'picnics' and 'beer' get more mentions on UK television than the environment. Climate change is principally invoked when talking about the environment rather than integrated into discussions of other topics – in contrast to topics such as money that span multiple topics from food to furniture to fashion (Albert, 2019).

It is also important to recognise the limits of emotions in promoting pro-environmental behaviour. Emotions are often transient and fail to produce sustained change – a finding that highlights the need to lock in commitments quickly during moments of high emotion before they cool off.

Parts of the creative industries have an ambiguous relationship with sustainability. Sectors such as advertising have a 'bright' and 'dark' side. They have the capacity to raise awareness among consumers and stimulate behavioural changes; but they create demand for products and services, including those of fossil fuel, motor and aviation companies that, in turn, contribute to climate change. The campaign group, Purpose Disruptors has introduced the concept of 'advertised emissions' – defined as greenhouse gas emissions that arise from the uplift in sales generated by advertising. It calculates the scale of advertised emissions as being as much as 208 million tonnes of CO2e in 2022 with advertising responsible for an additional 32% of the carbon footprint of every single person in the UK. This represents a 11% increase from 2018 (Purpose Disruptors, 2022).

More data does not necessarily equal better decisions and outcomes



Study based on analysis of BBC, ITV, Channel 4 and Sky representing over 40 channels across 128,719 distinct programmes between September 2017 to September 2018. Source: Albert (2020).

5 Permanent or transient: the long-term impact of the Covid-19 pandemic

Trends shaping the future of the Creative Industries

Coronavirus pandemic as 'the most challenging crisis' since World War II

WHAT IS THIS TREND?

The Covid-19 pandemic upended lives and livelihoods across the globe. Economically, it put a larger proportion of countries in recession than at any time in living memory. Socially and culturally, it forced consumers and businesses to adopt new behaviours. In the words of Indian author Arundhati Roy: "Historically, pandemics have forced humans to break with the past and imagine their world anew. This one is no different. It is a portal, a gateway between one world and the next" (Roy, 2020).

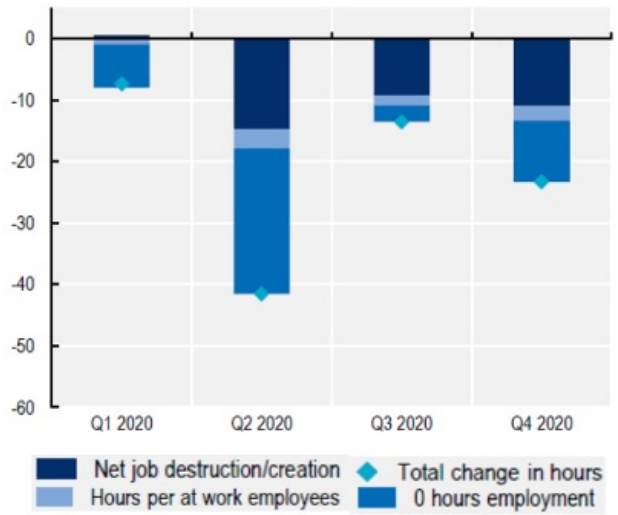
Economic impact of Covid-19 in historical perspective

Source: World Bank (2022). Note: The figure shows the percentage of countries experiencing negative growth in their per capita gross domestic product (GDP) from 1901 to 2021.

WHAT IS THIS TREND? (CONTINUED)

Contact-intensive activities were hardest hit, propagating shocks to the rest of the economy (Leibovici et al., 2020; Werning et al., 2020). This feature -the indiscriminate nature of the Covid-19 pandemic- distinguished it from other economic recessions that are more likely to be concentrated on businesses with weak management, balance sheets or strategy (Caballero and Hammour, 1994; Khlystova et al., 2022). Hours worked for employees in arts, entertainment and recreation sector fell by 42%, the second steepest decline only behind the accommodation and food sector. Approximately 95% of museums globally were compelled to close at some point during the crisis. According to UNESCO, the global value of cultural and creative industries contracted by $750bn in 2020 and at least 10mn jobs were lost, though the continued growth of video games was a notable exception (UNESCO, 2021). If anything, this estimate errs on the conservative side: it does not take into account the 'indirect' and 'induced' impacts of the contraction of the creative industries and the manner in which this contraction depressed wages and revenues among suppliers and wider value chain. Taking these indirect impacts into account, some subsector-based estimates suggest that the overall contraction was more than double the total for direct impacts alone (Olsberg SPI, 2020).

Impacts of Covid-19: change in hours worked in arts sector



Note: The figure reports the contribution of each category to the change in total hours. Average of EU countries (ex. Germany), Chile, Japan, Mexico, Norway, Switzerland, Turkey, UK and US. Source: OECD (2022).

Social distancing in action

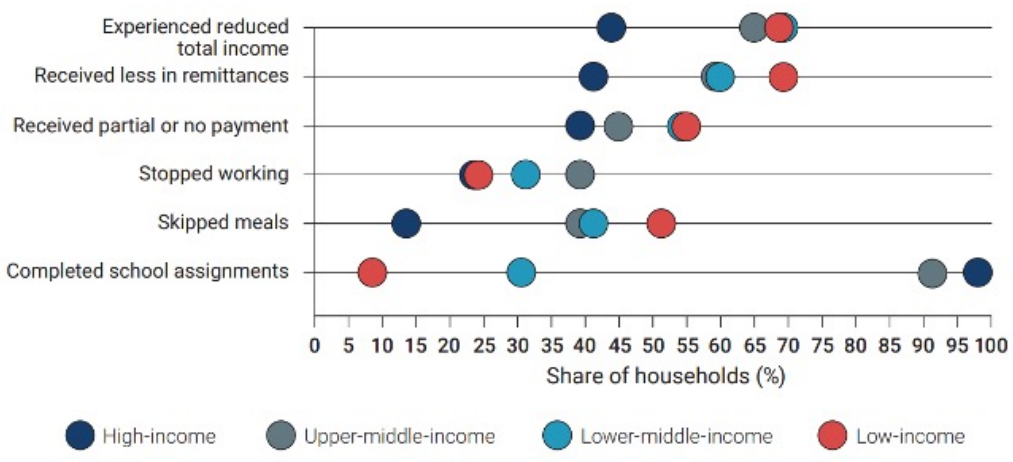
Reopening of the Berliner Ensemble in conformity with German social distancing policies in 2020. Around 70% of the auditorium's seats were removed, with every second row cleared and seats arranged either individually or in pairs on the remaining rows.

WHY DOES THIS TREND MATTER?

Covid-19 could have lasting impacts on the creative economy. There is evidence that creatives transition to work outside the sector during recessionary periods and may even stay outside the sector post-recession (Woronkowicz, 2015; ICOM, 2020). This is especially true for older freelancers who appear increasingly sensitive to job security and the grind of searching for jobs, gathering information about new projects and jockeying to stay visible in a competitive marketplace (Menger, 1999). It is also true for poorer freelancers who may not have the financial cushion to absorb spells of unemployment or underemployment, not least as self-employment support schemes introduced during the pandemic were not always well-aligned with the types of portfolio working and hybrid working prevalent in the creative industries (Brook et al., 2020; OECD, 2022).

More generally, there appears to be a growing divergence between the fortunes of advanced economies and developing economies. Advanced economies have experienced strong labour market recoveries whereas economic slack in low – and middle-income countries has proven more persistent. Limited resources, weak institutions and excessive indebtedness constrained the ability of these governments to mitigate the immediate impact of the pandemic on households and businesses. The longer people are unemployed or underemployed, the more likely that their skills will atrophy, their labour market attachment will diminish and their mental health will suffer. In turn, subdued investment could dampen productivity growth from slower adoption of technology and lower capital formation. Even as developing economies begin their slow pivot to recovery, the prevalence of informality appears to have grown, leaving workers at risk of lower incomes and reduced access to social safety nets. Wider evidence highlights the risks of scarring and the permanent loss of productive capacity that follow shocks like Covid-19: on average, epidemics reduce productivity (TFP) by between 6% and 15% if accompanied by recessions after 5 years (World Bank, 2020).

Impacts of the Covid-19 crisis on households, by country income group



Source: World Bank (2022). Note: The figure shows survey data summarizing the economic impact of the crisis on households. Data are taken from the first wave of surveys, administered between April and July 2020, to ensure comparability across countries.

WHY DOES THIS TREND MATTER? (CONTINUED)

Past crises have been accompanied by waves of structural transformation and reallocation of employment across sectors (Jaimovich and Siu, 2020). Recessions lower the opportunity and adjustment costs associated with change that can be high during booms. Consistent with this observation, Brookings (2019) finds that the past three recessions, dating back 30 years all coincided with an increase in automation. The pandemic also forced businesses, workers and audiences to innovate to find new ways to engage with culture and creativity due to lockdowns and social distancing guidelines. Even as demand for some of these practices has tapered off, it has done so at a higher rate than before the pandemic (Deloitte, 2021). Pandemic-induced changes have also reshaped spending patterns at a more granular level. In the UK, spending on gardening items and sports equipment, games and toys has settled higher than before the pandemic owing to people taking up hobbies, well-being activities or lifestyle changes during periods of physical and social isolation (ONS, 2022).

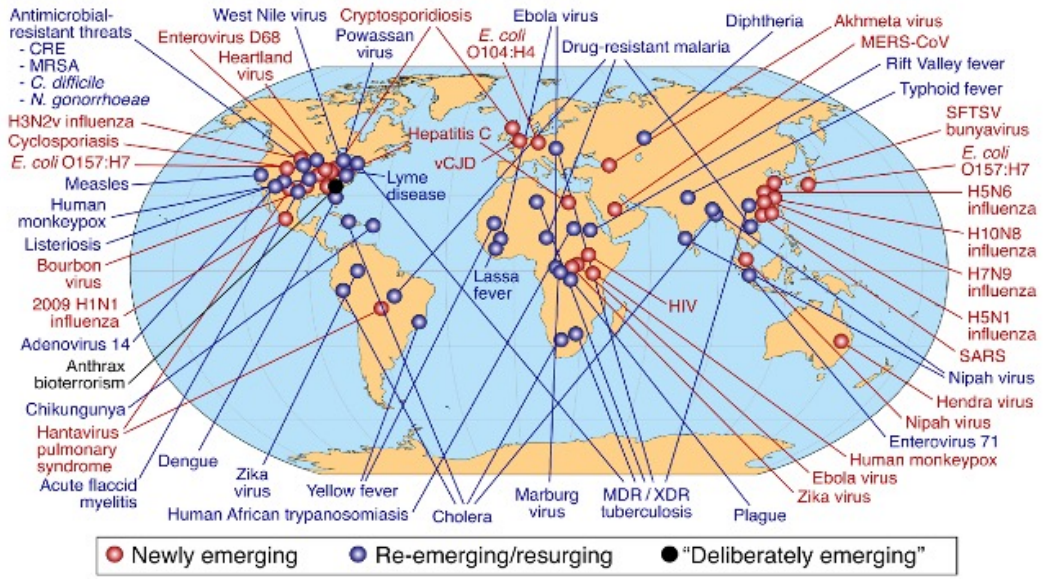
The productivity gap between top performing businesses and the rest appears to have widened during the pandemic (Bain, 2020; McKinsey, 2020). This has had particular significance for smaller firms that are already generally less productive than larger ones and operate at greater relative cost with less working capital to invest in new business models and digital technologies (Hawthorne, 2020). By contrast, larger businesses have had enhanced opportunities to deploy their cash reserves – a trend evident in the video games sector where M&A activity has hit record levels.

The long-term impacts of the pandemic are unclear

⚠ WHAT ARE SOME OF THE RISKS, UNCERTAINTIES AND TOPICS OF DEBATE RELATED TO THIS TREND?

The fog-of-war phase of the pandemic may be over but there remains significant uncertainty over which practices will stick. As a general rule of thumb, practices have tended to stick where technical infrastructure was already in place and lack of familiarity or awareness constituted the main barrier to adoption (McKinsey, 2021). However, many behavioural changes did not meet these conditions and so turned out to be more transient than initially supposed. Soh et al. (2022) document a shift in the demand for digital workers during the pandemic, particularly in harder-hit regions but discover that most of these effects had disappeared by mid-2022 as the share of digital employment and vacancies returned to pre-pandemic trends. Similar effects have been seen in the creative industries. Consider how the majority of publicly-subsidised UK theatres (58%) that offered online performances during the pandemic have now returned to live only (Misek et al., 2022). Part of this retrenchment is due to poor economics: the willingness to pay for online content remains substantially lower than for in-person tickets, meaning that producing and distributing high quality digital content is seldom profitable. This is exacerbated by a public funding structure that privileges one-off projects, the absence of a sector-wide digital rights framework and uncertainty about what content works best. The residual preference for in-person events is perhaps not surprising, with some commentators drawing parallels with the end of the 1918 influenza pandemic that ushered in the Roaring Twenties and Jazz Age as pent-up energy – as well as trauma and grief – was burnt up in clubs and dance halls (Coldwell, 2021).

Global examples of emerging and re-emerging diseases



WHO (2015) identified a number of priority diseases that are likely to cause severe outbreaks in the near future (i.e. coronaviruses, filoviruses, Crimean-Congo haemorrhagic fever, Rift Valley fever, Lassa fever and Nipah virus). This does not include diseases with serious pandemic potential but that are subject to major control initiatives, notably influenza whose extremely high mutability allows it evolve in ways that evade host immune defenses. Source: NIAID (2017).

All this illustrates a more basic point: Covid-19 will not be the last pandemic. Changes in eating habits, agricultural intensification, deforestation, the global wildlife trade, urbanisation, potential laboratory accidents and ever-increasing global connectedness through trade and travel have increased the risk of spillover of pathogens from animals as well as the emergence of new infectious diseases. On some estimates, mammals and birds are thought to host approximately 1.7mn undiscovered types of viruses, including some 700,000 that are capable of jumping and infecting humans (Carroll et al., 2018). This may explain why the total number of outbreaks and unique diseases has increased significantly since 1980, though prior to Covid-19, per capita cases had been in decline (Smith et al., 2014). To predict, detect and prevent the diseases of tomorrow, a global step change in surveillance and public health will be required. Challenges include haphazard global cooperation, historic underinvestment in R&D and critically a pattern of policy amnesia whereby outbreaks are followed by a period of intense activity only to lapse into complacency and a lack of preparedness ahead of the next crisis.

⚠ WHAT ARE SOME OF THE RISKS, UNCERTAINTIES AND TOPICS OF DEBATE RELATED TO THIS TREND? (CONTINUED)

Nonetheless, the long-term impacts of pandemics on activity should not be underestimated:

- Jorda et al. (2020) examine rates of return on assets using a dataset stretching back to 14th century, focusing on 15 major pandemics where >100,000 people died. They find that macroeconomic effects persist for roughly 40 years, leaving real rates of return markedly lower.
- Voigtländer and Voth (2012) find Black Death pogroms against Jews in the 14th century predict support for the Nazi Party and ideology in 20th century.
- Barro et al. (2022) and Anderson and Chang (2022) find that the influenza pandemic of 1918-1920 was a significant contributor to inflation, even after accounting for the impact of WWI. High inflation was undone only after economies fell into a recession following the tightening of monetary policy to tame it.
- A large body of interdisciplinary and sociological research finds that pandemics are as important to understanding cultural and societal development as economic crises, wars, revolutions and demographic change (Snowden, 2020).

The pandemic may also leave a more subtle imprint on beliefs and attitudes. Ipsos (2022) research suggests that the past few years have left people questioning the meaning of life – and many have concluded that the answer isn't 'work'. This may have manifested itself through 'The Great Resignation' and the large number of workers who have quit or switched jobs, including related phenomena such as 'quiet quitting'. The jury is out on the impact of the pandemic on emotional and mental wellbeing. Some evidence finds that Covid-19 has had a limited effect on self-reported levels of happiness around the world, though many countries are also struggling with a rise in the number of people, particularly young people and women reporting problems with anxiety and depression (WHR, 2023; Bower et al., 2023). An open question is whether this will act as a brake on economic activity in coming years. Kozlowski et al. (2020) observe that because nobody knows the distribution of shocks in the economy, an extreme negative shock like a pandemic – and for which there is little data – can trigger a large revision in beliefs. Once knowledge of a shock has entered an agent's dataset, it will take many more observations of 'normal' events to convince them that it is truly remote. Thus, before 2008, few people considered the prospect of financial collapse. Today, the prospect of another run on the financial system is mentioned regularly, even though it is probably on a firmer footing. The authors conclude that fears of future pandemics or even other previously unthinkable tail-risks could act as similar headwinds for activity, including creativity and risk-taking.

But the past is not always an indicator of the future. Broad generalisations about the impact of pandemics should be treated with caution. Each pandemic varies in its epidemiological characteristics and the cultural and social-economic context in which it takes place. An obvious difference from previous pandemics is that the global death toll of Covid-19 has been relatively mild and the speed with which vaccines were developed, if not always distributed equitably (Cohn Jr., 2018).

Urbanisation

Trends shaping the future of the Creative Industries

Trends shaping the future of the Creative Industries

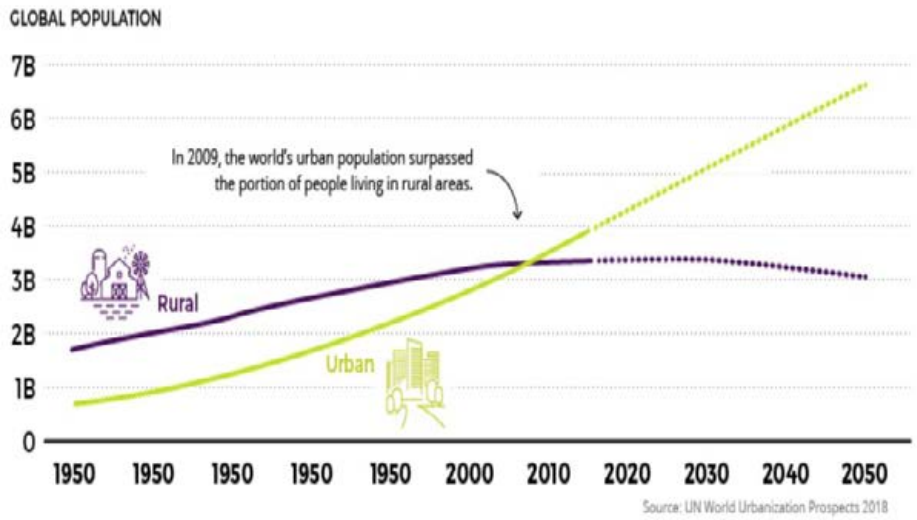
1 Role of cities in growth and development and as magnets for global talent

Bright lights, big city: the age of urbanisation and migration

WHAT IS THIS TREND?

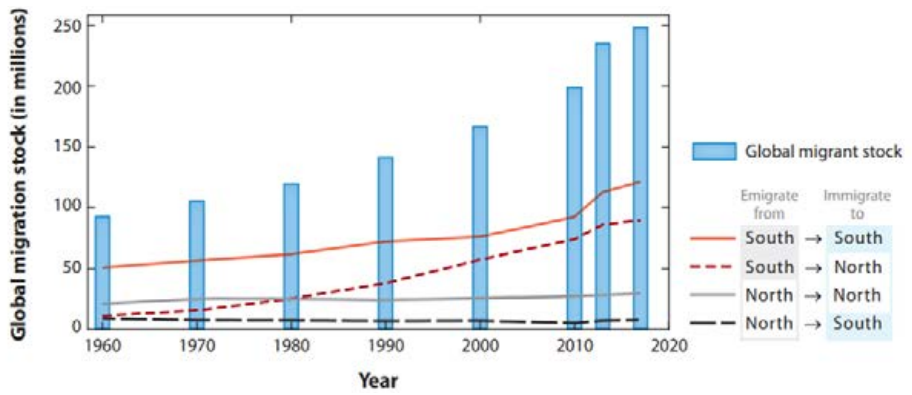
Over half of world's population – 4.4bn inhabitants – today lives in urban areas. This trend is expected to continue with cities adding another billion people by 2030 and two billion by 2050, by which time 66% of the world will be urban. Sub-Saharan Africa and Asia are poised to drive much of this growth: while Europe and North America are projected to add 13 large cities with a population of over 1mn inhabitants by 2035, Africa and Asia are forecast to add about 50 and 100, respectively. Closely linked with rapid urbanisation is migration and the desire of individuals to access better occupational, educational and social opportunities. Increasingly, this has taken on an international dimension as individuals, especially high-skilled workers move across borders. Historically, migration has been a powerful driver of real wage convergence among countries, though levels of global migration are today quite modest, with just over 3% of the world's population living in a foreign country (Lindert and Williamson, 2001; Clemens, 2011).

The world's urban and rural populations, 1950-2050



Source: UNDP (2018).

Migration across global corridors, 1960–2017



Note: This figure shows how migrant corridors have changed over the last 60 years. The largest stocks of migrants move from countries of the Global South into other Global South countries (solid red line); this may be reflecting forced migration as well as labor migration, as most refugees are hosted in countries neighboring those from which they flee. Source: Leblang and Peters (2022).

WHY DOES THIS TREND MATTER?

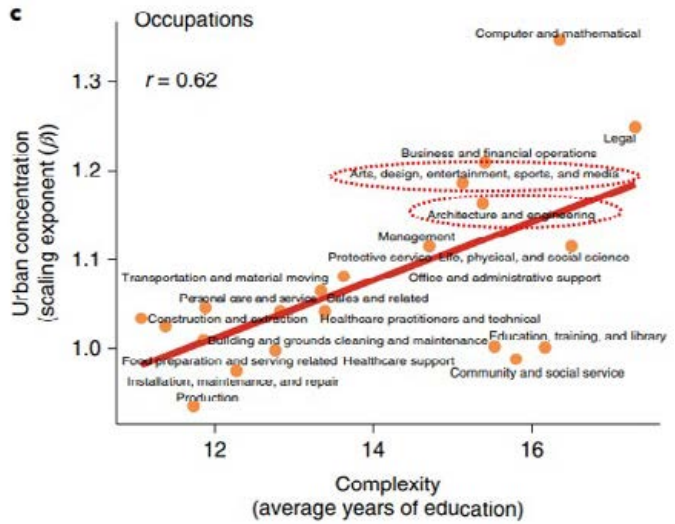
Cities are centres of economic activity and wealth generation. The fifty largest metro areas house just 7% of world's total population but generate nearly 50% of global economic activity, with the productivity gap between the top regions and the majority in high-income countries having widened by 60% over the past two decades. International evidence suggests that doubling the size of a city can boost productivity by 2%-5% with even larger benefits for developing countries (Combes et al., 2011; Chauvin et al., 2016). Others, however, suggest an upper bound to size beyond which the costs of congestion outweigh the benefits of scale, reducing productivity (Au and Henderson, 2006; Broersma and Oosterhaven, 2009).

Cities support creative activity in a number of ways:

- Proximity facilitates trust and the flow of ideas – for example, the benefits of knowledge exchange in the advertising industry can decay within a few streets and even a single building (Arzaghi and Henderson, 2008).
- The co-location of a large number of firms and workers deepens labour pooling and matching.
- Cities are home to an affluent, dynamic consumer base that is a source of demand for new products.
- Preferred location for complementary institutions such as universities and other knowledge-intensive industries. This is consistent with Lee and Rodríguez-Pose (2020) who find that US urban areas with higher levels of STEM and arts and creative skilled workers experience superior innovation performance. There are intriguing precedents for the creative collaboration of engineers, artists, scientists and curators, though despite the success of such partnerships, they have been generally underutilised (McCray, 2020).

The geography of creativity is therefore spiky, though it does not follow that the creative industries concentrate in just one city or region within a given country (OECD, 2022). Similarly, not all places develop in the same way. Nesta (2018), for example, identifies a plurality of cluster types supporting employment growth in the UK -incipient clusters, creative districts, creative conurbations, creative capitals and creative challengers, each reflecting differences in company size and mix, sub-sector specialisation, business growth and churn rates. This finding strongly suggests that the 'one-size-fits-all' approach to the creative industries pursued by many policymakers, with its focus on high-growth firms, should be replaced with a more comprehensive, more differentiated view of local economic development.

Urban concentration increases with knowledge complexity



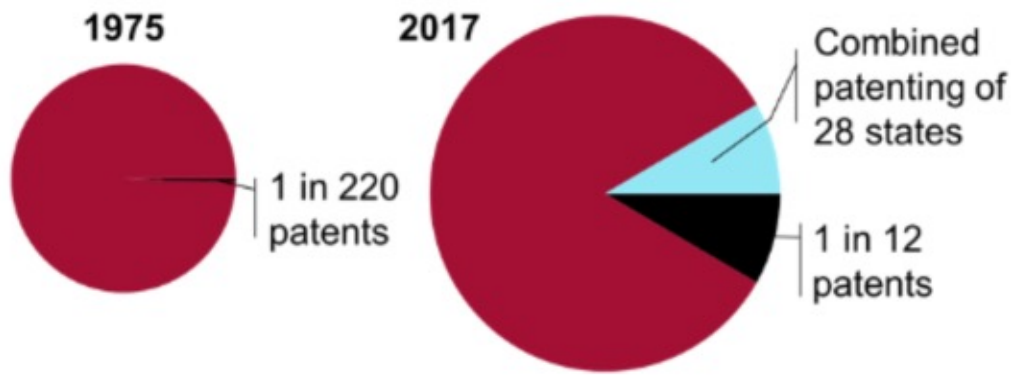
Notes: Urban concentration of activities, as captured by the scaling exponent, increases with the average years of education of workers within an occupational category. Source: Balland et al., (2018).

WHY DOES THIS TREND MATTER? (CONTINUED)

Large cities attract talented people from all corners of the world. The number of high-skilled migrants residing in OECD countries increased by around 130% between 1990 and 2010, led by the US, UK, Canada and Australia. Research highlights an entrepreneurial tendency among immigrants in many countries (Chiswick and Miller, 2014). In the US, the immigrant share of entrepreneurs rose from 17% in 1995 to 27% by 2008 far outpacing the growth of immigrants in the overall workforce. The immigrant share is even higher among fast-growing startups backed by venture capital (Kerr, 2018). Other research shows that cultural traits more generally can persist for generations after migrants arrive in a new country or even region that may have more ambiguous consequences (Jones, 2022; Bazzi et al., 2023). The global competition for talent has continued despite the impact of the pandemic, harsher political rhetoric and stricter policies towards family migrants and irregular migrants. Many governments have moved to a simpler and more generous immigration system to attract talent from countries perceived as less accommodating to skilled foreign-born workers (Arnold, 2020). A recent trend has been the emergence of new digital nomad visa schemes that permit foreign workers to stay in the country and work remotely for a company abroad (OECD, 2022).

Urbanisation brings with it important changes in lifestyle and living environment. Densification policies may be welfare enhancing, but the distributional effects may be regressive, exacerbating inequalities, especially if residents are immobile and housing supply is inelastic (Ahlfeldt and Pietrostefani, 2019). Urbanisation has contributed to the rise of single-person households that make up over half of all households in some European cities (Klinenberg, 2012; Ortiz-Ospina, 2019). Features of the urban environment have been linked to an increase in sedentary behaviour and conditions such as loneliness. New forms of association and services, including in the creative economy, have emerged to support – and in some cases exploit – those who feel alone (Matthews et al., 2016; Hertz, 2020; Huxiu, 2021).

Patenting by Chinese and Indian ethnic inventors in San Francisco Bay area as a share of US total



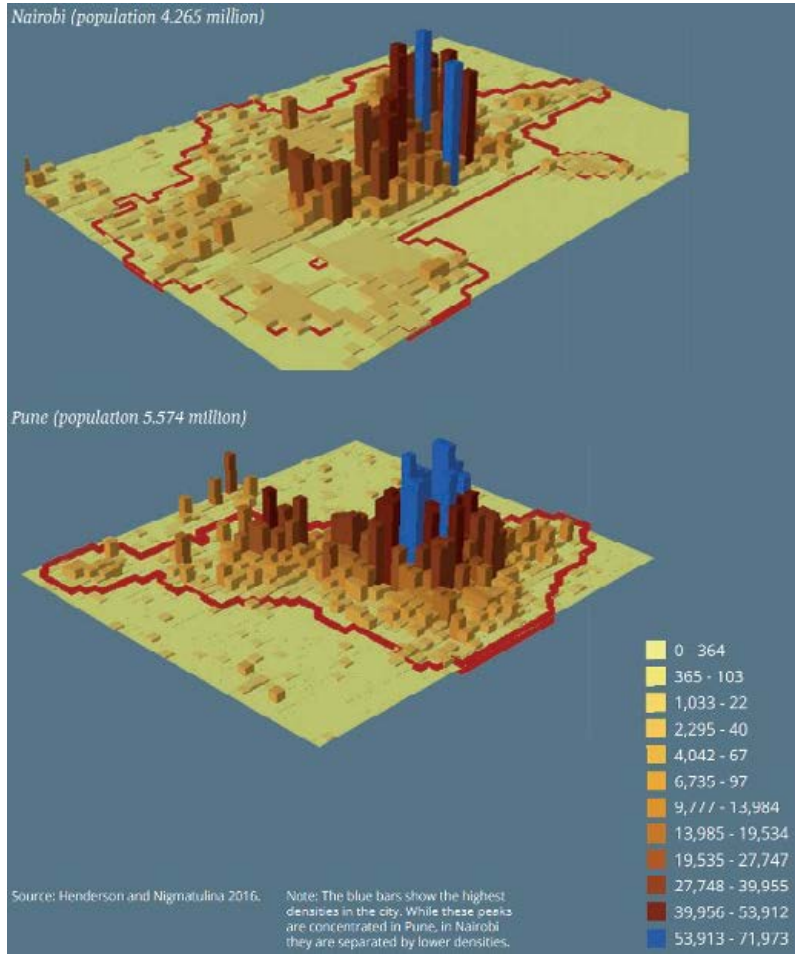
In 2017, Chinese or Indian ethnic inventors in the San Francisco Bay Area contributed 1 in 12 patents. This was larger than the total output of any other US state, including New York or Massachusetts. It was equivalent to the combined activity of the 28 states in the country that produce the least patents. Source: Kerr (2018).

⚠ WHAT ARE SOME OF THE RISKS, UNCERTAINTIES AND TOPICS OF DEBATE RELATED TO THIS TREND?

Too many cities in lower-income settings punch below their weight. In Africa, Nairobi, Lagos and Johannesburg are home to a large share of the continent's entrepreneurs. However, poor infrastructure and institutional and regulatory constraints that misallocate land and labour and disperse physical development mean that these cities have not fully reaped the fruits of urbanisation and agglomeration. The average African city is 20% more fragmented than cities in Asia and has 37% less exposure to people and jobs, reducing scale and agglomeration benefits (Lall et al., 2017). Urban-rural interlinkages are also marginalised in urban planning and decision-making practices, even though cities are dependent on their hinterlands for natural resources, commodities and other ecosystem services.

Emigration has raised concerns about 'brain drain' and the loss of human capital from lower-income countries. A 2019 Pew study showed that substantial shares of people in Nigeria (45%), Tunisia (24%) and Kenya (19%) said they planned to emigrate within five years. Brain drain appears particularly strong in small island states and landlocked countries (UNOPS, 2020). But this phenomenon is not limited to poorer countries, as illustrated by fears that Brexit would jeopardise the UK's position as a world leader in research as talent relocated overseas to protect EU funding.

Connections among people as a function of population near the city centre for Nairobi and Pure



Note: Nairobi, Kenya is more fragmented and less well-connected than Pune, India. The blue bars show the highest densities in the city. While these peaks are concentrated in Pune, in Nairobi they are separated by lower densities. Source: Lall et al. (2017).

⚠ WHAT ARE SOME OF THE RISKS, UNCERTAINTIES AND TOPICS OF DEBATE RELATED TO THIS TREND? (CONTINUED)

Nonetheless, there is a risk that migration is viewed as a zero-sum game between countries. High-skilled emigrants can create sorely needed bridges to global expertise, finance and contacts. In 2022, officially recorded remittances to low- and middle-income countries (excluding China) reached an estimated $630bn – three times the size of foreign aid. Many workers will eventually return home with higher levels of human and cultural capital. But the overall welfare calculation ultimately varies case by case. Each country and circumstance are unique and both the positive and negative impacts of migration can be present in a given relationship. For example, evidence from India finds that skilled emigration, on average, results in a reduction in domestic innovation; on the other hand, access to knowledge provided by the diaspora plays a disproportionately large role in the highest value inventions as measured by citations received (Agrawal et al., 2011).

Despite the popularity of incubator and accelerator programmes to support innovation, policymakers understanding of what works and how it works remains limited. Madaleno et al. (2022) provide a systematic review of the evidence and find that incubators and accelerators raise participant employment, with accelerators also facilitating access to finance. Impacts on firm survival are more mixed, partly reflecting programmes' ability to weed out bad ideas – in the process, improving the performance of firms that do survive. Programmes tend to work better in dense urban environments that leverage connections with local universities. They also benefit non-typical firms, including female- or BAME-founded businesses relative to the average firm. However, beyond these observations, there is less clarity about which type of support is most valuable in terms of funding, mentoring, networking, the optimal length of tenancy and programme size. Similar uncertainties hang over the design of instruments that are specific to the creative industries. Exploring the impact of tax and production incentives on film location decisions, Owens and Rennhoff (2020) find that incentives can attract film shoots to a US state, though their impact varies by (i) the type of incentive offered (ii) studio characteristics and (iii) inherent geographical features. Specifically, midsized studios respond to all forms of incentives; major studios respond only to refundable and transferable tax credits and indies are not sensitive to any incentives. Nonetheless, these effects appear only temporary and do little to create a permanent movie industry in a state – see also Swenson (2017), Thom (2018), Button (2018) and Bradbury (2019).

Immigration policy is not always aligned with the needs of the creative industries. Even as new pathways to attract highly educated migrants have emerged, some creatives have fallen through the cracks as many programmes rely on inappropriate measures of skill like salary as part of a points-based system or underestimate the sector's reliance on temporary workers and short-term visas. Points-based systems have the effect of transferring the administrative burden and the attendant complexity to business. Not surprisingly, many small businesses lack the capacity to navigate these processes. In the UK, for instance, nearly 95% of SMEs have limited experience of preparing and submitting visa sponsorship applications. In the creative industries, there have been reports that the post-Brexit sponsoring process can take up to 20 weeks to be completed - a timeframe that is poorly aligned with the fast-paced nature and needs of the sector (Haddoud et al., 2023).

2 Creative industries, culture and urban competitiveness

Trends shaping the future of the Creative Industries

Beautiful city: cultural infrastructure and urban growth?

WHAT IS THIS TREND?

Cities are turning to culture and creativity to support sustainable urban development. Urban planners and policymakers have long been interested in the relationship between cities, culture and growth. The City Beautiful movement of early 20th century believed that urban ugliness accompanying rapid industrialisation threatened economic efficiency and social harmony. More recently, investment in leisure amenities and creative industries has become a popular strategy in the municipal toolkit for attracting high-skilled workers and expanding the pool of ideas that enhances the productivity of other sectors. The golden thread that runs these initiatives is that cities are not just a collection of buildings but are built on people, their stories and how they interact with each other through their cultural identity and sense of place (UNESCO, 2021).

WHY DOES THIS TREND MATTER?

A growing body of evidence points to a positive relationship between the availability of leisure amenities and the ability to attract high-skilled workers. It has led to a number of findings, notwithstanding questions about the direction of causality and the magnitude of effects:

- Falck et al. (2011) use proximity to baroque opera houses in Germany to predict concentrations of high-skilled individuals today. Being 10km closer to a baroque opera house translates into 0.3pp higher share of high-skilled workers in a county; in turn, a greater concentration of skilled people results in faster regional growth. A causal interpretation is supported insofar as the impetus for building opera houses in 17th and 18th centuries owed more to whims of individual rulers who were competing for prestige than a region's level of economic development.
- Carlino and Saiz (2019) construct crowdsourced proxies for attractiveness and find that urban population and employment growth over the period 1990-2010 was 10 percentage points higher in metro areas perceived twice as 'picturesque'. Living in a beautiful city ranks alongside low taxes as the top predictor of urban growth and is valued especially by young and skilled workers (see also Hristova et al., 2018).
- Brasington (2022) uses regression discontinuity and shows that renewing tax levies for parks and recreational activities causes more residential construction than in cities that narrowly vote to cut funding, though with diminishing effects over time.
- Gutierrez-Posada et al. (2021) use a 20-year panel of UK cities and find that each creative job generates at least 1.9 non-tradable jobs between 1998 and 2018. This is driven primarily creative business services employees' local spending, rather than visitors to urban amenities such as galleries and museums. These effects appear to have weakened over time, especially after the 2008 financial crisis.
- UNESCO (2021) highlights the role the cultural and creative industries played in urban recovery and resilience during the pandemic.

Examples of how cities and towns have enabled creativity or leveraged culture

Lima, Peru – A group of chefs saw the commercial and creative potential in Peruvian cuisine to resolve social and economic strife in Lima. They launched many projects in partnership with national and local governments. The projects' success motivated the city to launch the 'Cocina de Ideas' (Kitchen of Ideas) to train restauranteurs, while reaching out to include the poor and marginalized residents of the city in their efforts. Lima's gastronomic industry now represents about 11.2% of Peru's economy.

Kobe and Kyoto, Japan – After suffering a massive earthquake in 1995, Kobe had to rebuild its economic and cultural foundation. Its history of tolerance as the first open port in Japan during the 19th century informed an inclusive approach to its renewal. In Kyoto, city planners led urban renewal by inviting creative ideas for technology-enabled art and entrepreneurship. Inspired by the city's 1,200-year history as Japan's ancient capital, entrepreneurs and artists gather in city-sponsored creative spaces. Now 16–18% of all private enterprises in Kyoto are in creative fields.

Seoul, South Korea – The city is leveraging the Hallyu, or "Korean Wave," phenomenon—the worldwide popularity of Korean culture, from K-pop and K-dramas to online games and Korean cuisine. Seoul built a Digital Media City (DMC), a high-end Media & Entertainment and IT Industrial Cluster on a former landfill. In Seoul's Urban Regeneration Center, residents can now plan, design and implement their own neighbourhood renewal projects.

Madaba, Jordan – After archaeologists unearthed ancient mosaics in Madaba, Jordan, in the 20th century, the city started using mosaics to beautify urban spaces. The government also funded education and training for craftspeople. Now the "City of Mosaics" partly supports itself through tourism.

Brazzaville, Republic of the Congo – The government of the Congolese capital city built event spaces for musicians to perform their renowned, traditional music. By providing instruments and residences for them, the city professionalized and began monetizing its musical heritage. Concerts have become a draw for tourists and identify the city with the wider Pan-African musical network.

Belgrade, Serbia – The artistic and creative community led efforts to renovate unused buildings to establish cultural districts in Savamala, the Belgrade Design District (Choomich), Cetinjska Street and Dorćol Platz. But without government planning and support, Savamala was marketed to private investors, resulting in rapid gentrification and making it unaffordable for many creative professionals.

Santos, Brazil – City leaders convened stakeholders from the public and private sectors, civil society, NGOs and schools to train residents in creative professions. Stakeholders built nine "Creative Villages" in areas where drug-dealing, prostitution and makeshift housing had prevailed previously.

Angoulême, France – This town in Western France developed into a centre for comic-book creators and afficionados. Emerging out of its paper-manufacturing and literary heritage, dating back to the 16th century, the comic-book capital is home to 200 authors and artists. The city created the Ligue des Auteurs Professionnels as an economic safety net for creatives.

Source: Reproduced directly from UNESCO/World Bank (2021).

⚠ WHAT ARE SOME OF THE RISKS, UNCERTAINTIES AND TOPICS OF DEBATE RELATED TO THIS TREND?

A strong dose of realism is required about what creative initiatives can accomplish. Many initiatives assume that the establishment of cultural activities and amenities will naturally generate economic growth and lead to vibrant, thriving places. Cultural interventions are not a panacea to deep-seated, structural economic problems and need to work with the grain of good practice in terms of place-based policy (Austin et al., 2018; What Works Network, 2023). Cities are highly complex, with high degrees of path dependency. History, even it involves a chance and accident can cast a long shadow on the opportunities available to cities (Swinney and Thomas, 2015). To leverage culture and creativity for urban development, cultural fundamentals need to be considered at a much earlier stage than they are typically done. Among other things, it means a greater emphasis on participatory institutions involving relevant stakeholders and a reconceptualisation of buildings and spaces as platforms for creativity rather than single-use assets (L&G, 2019).

Housing costs may limit the opportunities for creatives to participate in the life of cities, potentially harming their vibrancy (Ahlfeldt and Pietrostefani, 2019; Couture and Handbury, 2020). Many countries around the world are experiencing a general "affordability crisis" in housing as prospective homebuyers face house prices that are rising much faster than incomes. Based on median affordability (price-to-income ratio in the formal housing sector), Kallergis et al. (2018) find that cities in less developed countries (x6.6) are less affordable than cities in more developed countries (x5.1). The results are stark: interregional mobility in some countries now goes in the wrong direction: people move away from most productive to less productive regions, weakening agglomeration benefits (Stansbury et al., 2023). In the creative industries, there exist numerous examples of artists being displaced from urban centres or making do with substandard housing, sometimes with tragic consequences. Consider the Ghost Ship warehouse-turned-artist collective in Oakland, California that caught fire in 2016, killing 36 people due to a lack of basic fire safety mechanisms and overcrowding. Others fear an exodus of families due to rising housing costs and the focus on making cities attractive to well-heeled professionals, raising the spectre of the 'childless city' that risks a loss of chaotic energy, tolerance and conviviality (Jacobs, 2023). Likewise, the costs of getting on the housing ladder and higher mortgage rates may squeeze household spending on creative goods and services. Finally, insofar as owners of intangibles-rich businesses often use their homes as collateral to raise finance, a lack of home ownership may become a greater barrier to entrepreneurship in the creative industries (Haskel and Westlake, 2022).

Source: IMF (2022).

Options to address supply and demand-side barriers to affordable housing

3 The future of cities post-Covid-19 and hybrid working

Trends shaping the future of the Creative Industries

The future of cities post-Covid-19

WHAT IS THIS TREND?

Covid-19 pandemic was a stark reminder that urban areas need to be prepared for unpredictable events. The pandemic exposed long-standing vulnerabilities in the social fabric of cities – residential overcrowding, poverty and unequal access to infrastructure, resulting in disproportionate impacts on disadvantaged groups. It also triggered a reappraisal of urban living, with some predicting an exodus of people who could work and live elsewhere and even the death of the city itself.

WHY DOES THIS TREND MATTER?

By definition, the future of the city has consequences for the locus of economic activity, productivity and innovation, transportation patterns, consumption habits and wellbeing. In turn this has second-order consequences for the location of cultural infrastructure, the demand for particular creative services such as architecture and design as well as the dynamics of creativity. Despite initial predictions that the pandemic would drive migration from large superstar cities, there is no compelling evidence that this has happened on a significant scale. In fact, it is worth remembering that some major cities had seen population growth begin to decline prior to the pandemic (Evans, 2019; Goldman Sachs, 2019).

Paris in 15 minutes

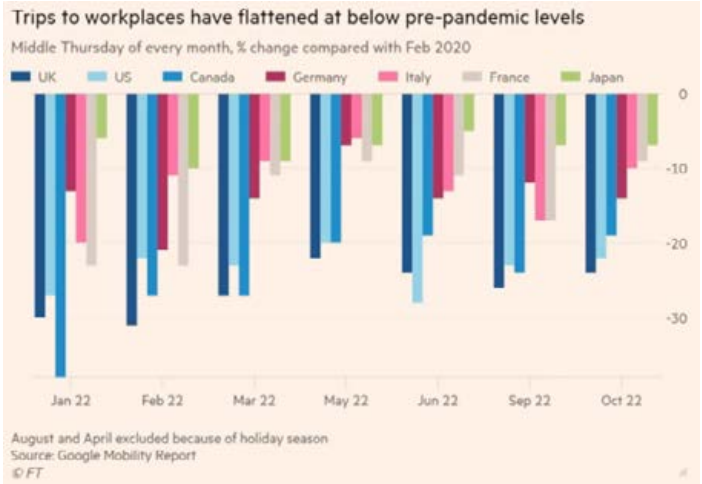
Paris en Commun's '15-minute city' concept sketch. Clockwise from the top the headings read: Education, Work, Knowledge Exchange, Shopping, Recreation, Community Engagement, Health, Public Transport, Exercise and Nutrition. The concept is based on the idea that residents daily needs are all within 15-minute reach on foot or by bike. It won the 2021 Obel Award, an international prize to honour outstanding architectural contributions to human development (Shrimsley, 2020). Cities exploring similar ideas include Melbourne, Ottawa, Barcelona, Milan, Detroit and Neom in Saudi Arabia. The concept, however, is not without its critics. Some argue that it works only in a certain context -that, it requires a minimum level of economic density and it is difficult to transplant to highly segregated settings. There it may simply exacerbate inequalities by further subdividing cities without providing the connections or sinews that allow them to be places of opportunity (Glaeser, 2021). This is consistent with evidence that inequalities can open up over short distances, even at the level of a neighbourhood, post code or city block (Chetty and Hendren, 2018) . In response, others claim that these obstacles can be overcome with appropriate interventions and investments and there is nothing in the concept that cannot be adapted for other geographies, including the Global South (HSBC, 2021; Allam et al, 2022). Source: Ubique (2019).

WHY DOES THIS TREND MATTER? (CONTINUED)

However, this does not mean that nothing has changed. **The pandemic has offered an opportunity to rethink how the public interacts with the urban environment to make cities more attractive places to live and work**. It has revived interest in policies such as greening and pedestrianisation and the repurposing of offices and unfilled retail sites for leisure or residential use (Hammond, 2021). In London, it is estimated that one fifth of office space will no longer be in use by 2025 and that there will be a 50% increase in weekend and evening visitors with calls to convert unused office space into artists' residencies or galleries. In developing countries, a number of cities have reclaimed unused public spaces and abandoned structures and converted them into neighbourhood-level farmers' markets and pop-up retail as in Delhi. All these initiatives share a common belief that cities should be permeable in which public and private, work and home, indoor and outdoor activities are much less delineated (Hobsbawn, 2022). They are consistent with ethnographic evidence that communities that foster and maintain social and economic relationships are not necessarily wealthy but are walkable and safe, informed by flexible planning approaches (Klinenberg, 2015). They are also consistent with the dynamics of creativity in urban settings that often follow a more distributed spatial pattern as opposed to a city-centric or spatially clustered pattern (Reuschke et al., 2023).

If these efforts are unsuccessful, so other cities may emerge as relative winners. It is well-documented that artists are a footloose group (Markuson and Schrock, 2006). The rise of creative enclaves like Chengdu (China), Austin (US) and Bilbao (Spain) suggests that migration patterns are not simply a function of size or growth. These cities have managed to provide a nurturing artistic and patron community, amenities and affordable cost of living, attracting and retaining creative workers. This is consistent with wider evidence: UN city-by-city projections show that the fastest urban growth rate in coming years is likely to be in cities with 3-5mn people, albeit from a lower base.

There has been a significant increase in flexible and hybrid working since the pandemic. Data shows that in many advanced economies people have not gone back to pre-Covid-19 commuting patterns as they have embraced hybrid working. In the US alone, work-from-home has saved about 200mn hours and 6bn miles of commuting a week (Bloom, 2022). Aksoy et al. (2022) find that employees value the option to work from home (WFH) 2-3 days per week at 5% of pay, on average, with higher valuations for women while one quarter say they would quit or seek a job that lets them WFH one or two days per week if employers required a return to 5+ days per week onsite. Over time, these trends could lead to a hollowing out of city centres and the growth of suburban outer rings and commuter belts, though they are unlikely to happen on such a scale that the majority of employees are able to leave the cities containing their employer in their entirety (Ramani and Bloom, 2021).



Source: FT (2022).

WHY DOES THIS TREND MATTER? (CONTINUED)

More generally, governments view smart cities – enabled by digital technologies – as essential to their post-pandemic futures. MGI (2018) estimates that smart city applications and use of real-time data could improve key quality-of-life indicators by 10%-30% allowing urban planners to squeeze the most out of infrastructure assets. Smart city initiatives are also being embraced by developing countries from Rwanda to Vietnam with a particular focus on solutions such as the Bus Rapid Transit (BRT) that serve the needs of the urban poor (UNDP, 2021).

WHAT ARE SOME OF THE RISKS, UNCERTAINTIES AND TOPICS OF DEBATE RELATED TO THIS TREND?

The pandemic has placed enormous budget pressure on cities, interrupting renewal projects and creating new hurdles for policymakers. This has been magnified by planning and zoning restrictions that make it harder to repurpose buildings as well as increasing the investment risk for new development projects.

The success of hybrid working will depend on sustained improvements in worker satisfaction and productivity. There is evidence that productivity is higher for certain activities when working from home – for example, repetitive tasks such as giving the same presentation to different clients. But for other activities such a brainstorming, working from home may be less productive. Some argue that homeworking will make people less creative by limiting exposure to new experiences and increase feelings of exclusion and isolation; others, however, contend that creativity requires moments of quiet, solitude and reflection that flourish in environments like the home (Dingel and Neiman, 2020; Haldane, 2020; Jacobs, 2021). So far the empirical evidence is mixed: the increasing sophistication of remote-collaboration technologies offers a potential explanation for why the geographic dispersal of collaborative innovations, as measured by the locations of named inventors in patent filings, has been rising for decades (Chen et al., 2022; Pearce, 2023). This applies as much to disruptive advances as to incremental advances. On the other hand, there is evidence that the shift to remote work during the pandemic led communications to become more asynchronous and collaborations become more static and siloed (Yang et al., 2021). A recent experiment suggests that videoconferencing hampers idea generation because it focuses communicators on a screen that prompts a narrower cognitive focus (Brucks and Levav, 2022).

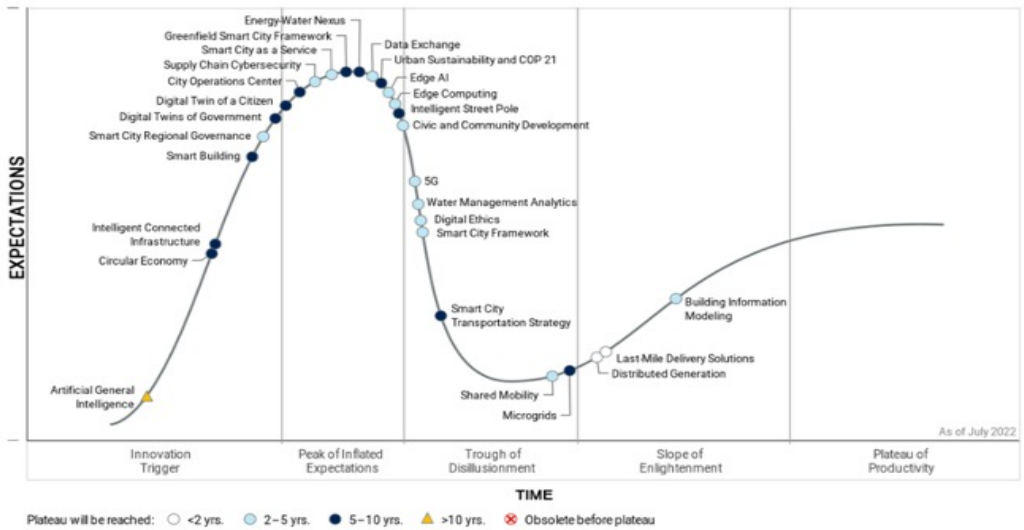
Greenfield projects like 175-acre Toyota's Woven City at the foot of Mount Fuji offer a tantalising glimpse of what is possible, including new approaches to street design, subterranean delivery systems, hydrogen fuel cell power production and use of carbon-neutral timber, giving researchers a blank slate to trial cutting-edge R&D.

⚠ WHAT ARE SOME OF THE RISKS, UNCERTAINTIES AND TOPICS OF DEBATE RELATED TO THIS TREND? (CONTINUED)

For hybrid work to deliver its maximum benefits, organisations will need to adapt their practices over time to limit the disadvantages and leverage the advantages. At the moment, there is a lack of confidence and competence among managers to make these new arrangements work. This is particularly true for organisations with traditional hierarchies where remote workers may feel too detached from the centre and the locus of decision-making (Pozen and Samuel, 2021). Some organisations are taking steps to address implementation issues – for example, London's Royal Academy of Dramatic Art runs training under its Rada Business arm to help leaders establish clear rules of engagement and manage employee expectations. Particular attention should be paid to issues such as mentoring, apprenticeships and networking in a virtual environment given their importance for knowledge acquisition in the creative industries (Tu and Li, 2021). Finally, more technical progress needs to be made in creating greater reach and quality in one-way and two-way communications. For example, research finds that many home workers suffer excessive stress staring at themselves on video calls, though this can be resolved by trivial changes in user interfaces, combined with the redirection of innovation efforts towards remote-work technologies more generally (Bailenson, 2021; Bloom et al., 2021).

The smart city agenda remains an aspiration rather than a solid achievement. Many projects have failed to move beyond the pilot stage, languishing in inertia, delays and the occasional white elephant (Atabong, 2021). Where AI has been deployed in cities, it has been for relatively simple tasks such as improving waste removal. More fundamentally, there are tensions over how smart cities should be run. Corporate-led experiments – Alphabet's work with the LinkNYC and Sidewalk Lab's Toronto experiment – have faced considerable pushback with the latter abruptly abandoned in May 2020. Critics caution against seeing the city only through the lens of technology, drawing parallels with the failures of Corbusian high modernism. They point out that technical solutions will have little impact on citizens needs unless they are accompanied by other forms of social change and recognises the complexity of people and institutions. At the heart of this criticism is a recognition that cities sit upon layers of interconnected systems – each built at different times and for different reasons, making it essential that smart projects are truly backwards compatible. This vision – one that prioritises need-based policy goals – informs the approach of cities like Barcelona and its deliberative Decidim platform, urban governance in Brazil's Porto Alegre, Columbus Ohio's smart transportation strategy and the broader 'smart enough city' movement (Green, 2019; Clark, 2020). However, like neighbouring concepts such as inclusive growth, this agenda can suffer from fuzziness in its articulation, posing challenges for implementation and evaluation (Brookings, 2017).

Hype Cycle for Smart City Technologies and Solutions, 2022



Note: Graphic representation of the maturity and adoption of technologies and applications related to smart city technologies. It displays time to wide adoption (x-axis) vs. expectations (y-axis). Source: Gartner (2022).

4 Infrastructure gap

Trends shaping the future of the Creative Industries

Massive infrastructure investment needed for the next phase of urbanisation

WHAT IS THIS TREND?

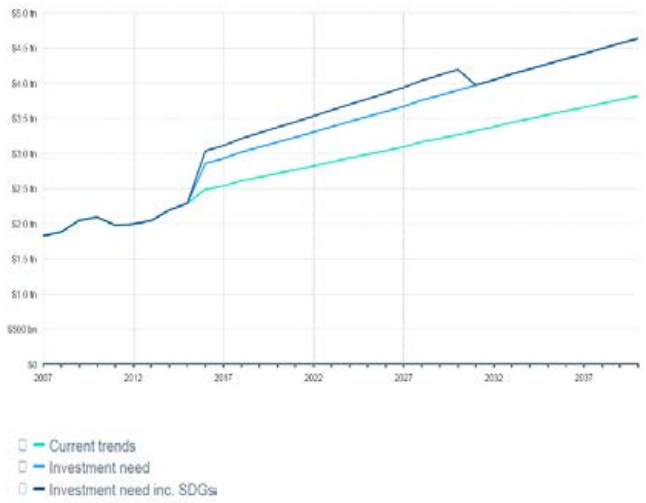
The world faces formidable challenges in delivering infrastructure to cope with the growth of urban population in coming decades. It has coincided with a prolonged period of fiscal austerity in OECD countries that has generated a large backlog of projects. The problem is even more acute in sub-Saharan Africa where the pandemic, inflation and the energy crisis has undermined efforts to provide basic public goods such as universal electricity access. The International Energy Agency (2022) projects that 660mn people will still without access to electricity in 2030 with 85% of those living in sub-Saharan Africa.

WHY DOES THIS TREND MATTER?

The global infrastructure financing gap is estimated to reach $18tn by 2040. To provide basic infrastructure for all people over the course of the next twenty years, every year the world would need to spend nearly $1tn more than the previous year in the infrastructure sector (GIO, 2023).

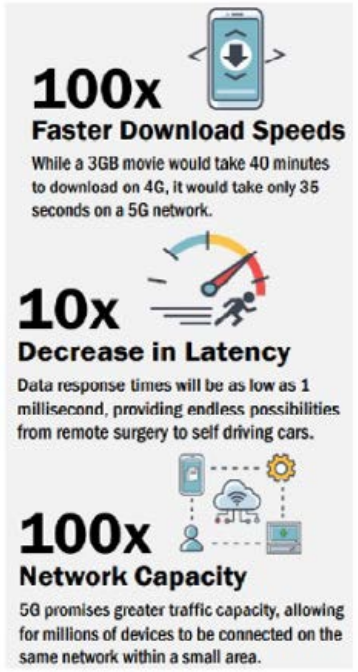
Infrastructure investment is critical for digital inclusion and transformation and providing a strong foundation for the creative economy to flourish. 5G is seen at the forefront of these efforts. 5G promises a range of improvements, including higher data rates (extremely fast download speeds), ultra-low latency (near real-time interactivity) and increased network capacity (allowing for the connectivity of many more devices at once). In particular, it holds out the promise of ubiquitous ultra-fast broadband without the need for a fixed line connection. Wider research finds that the economic contribution of mobile broadband is higher in less developed countries than in more developed ones (ITU, 2019). In aggregate, the adoption of 5G could add as much as $13.2tn to global GDP by 2035 depending on the specific assumptions made (IHS Markit, 2019).

Infrastructure investment at current trends and need



Source: GIO (2023).

Digital infrastructure: how does 5G compare to 4G?



Source: BofA (2022).

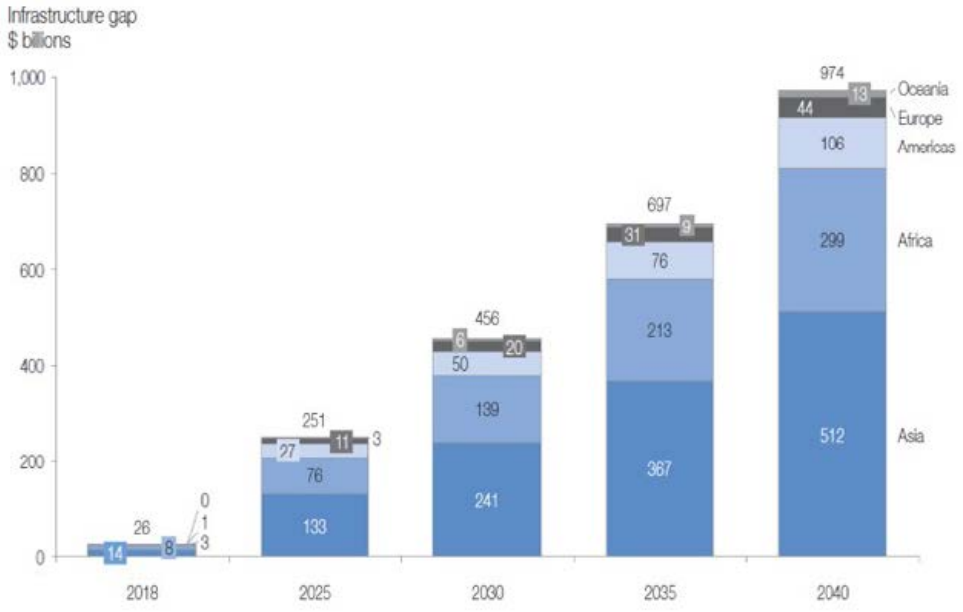
The digital infrastructure gap is growing rapidly, particularly in middle and low-income countries

⚠ WHAT ARE SOME OF THE RISKS, UNCERTAINTIES AND TOPICS OF DEBATE RELATED TO THIS TREND?

There are a number of barriers to investment in digital infrastructure on both the supply and demand side, particularly in developing countries:

- **Rising capex requirements**. Infrastructure like 5G requires considerable upgrades in radio, edge, transport, core and cloud infrastructure.
- **A weak telecoms spending climate**. The telecommunications sector – which is the main funder of digital infrastructure – has faced declining revenues over the past decade due to competition, commoditisation, lower tariffs and dividend payments. This has reduced funding available for network expansion. An open question is whether long-standing efforts to compel tech companies to share some of the load and contribute to network costs gain policy traction.
- **Lack of a single killer app for technologies such as 5G**. Operators have struggled to convince customers that it can offer something tangible and new to their lives. In US, only 10% of customers are willing to pay $6 or more for 5G services and one-quarter of customers say they are not willing to pay any extra at all. In Europe, two-thirds of customers are unwilling to pay more than five euros per month for 10x higher speed (McKinsey, 2021). There is greater awareness of the benefits of 5G for business but even here, the value proposition of additional digital connectivity is fragmented across hundreds of use cases rather than in a single killer application prompting 'wait-and-see' approach. There are parallels with the rollout of 3G in the early 2000s that was also sluggish until it found its calling with the smartphone later in the decade.

Digital infrastructure gap, 2018-2040e



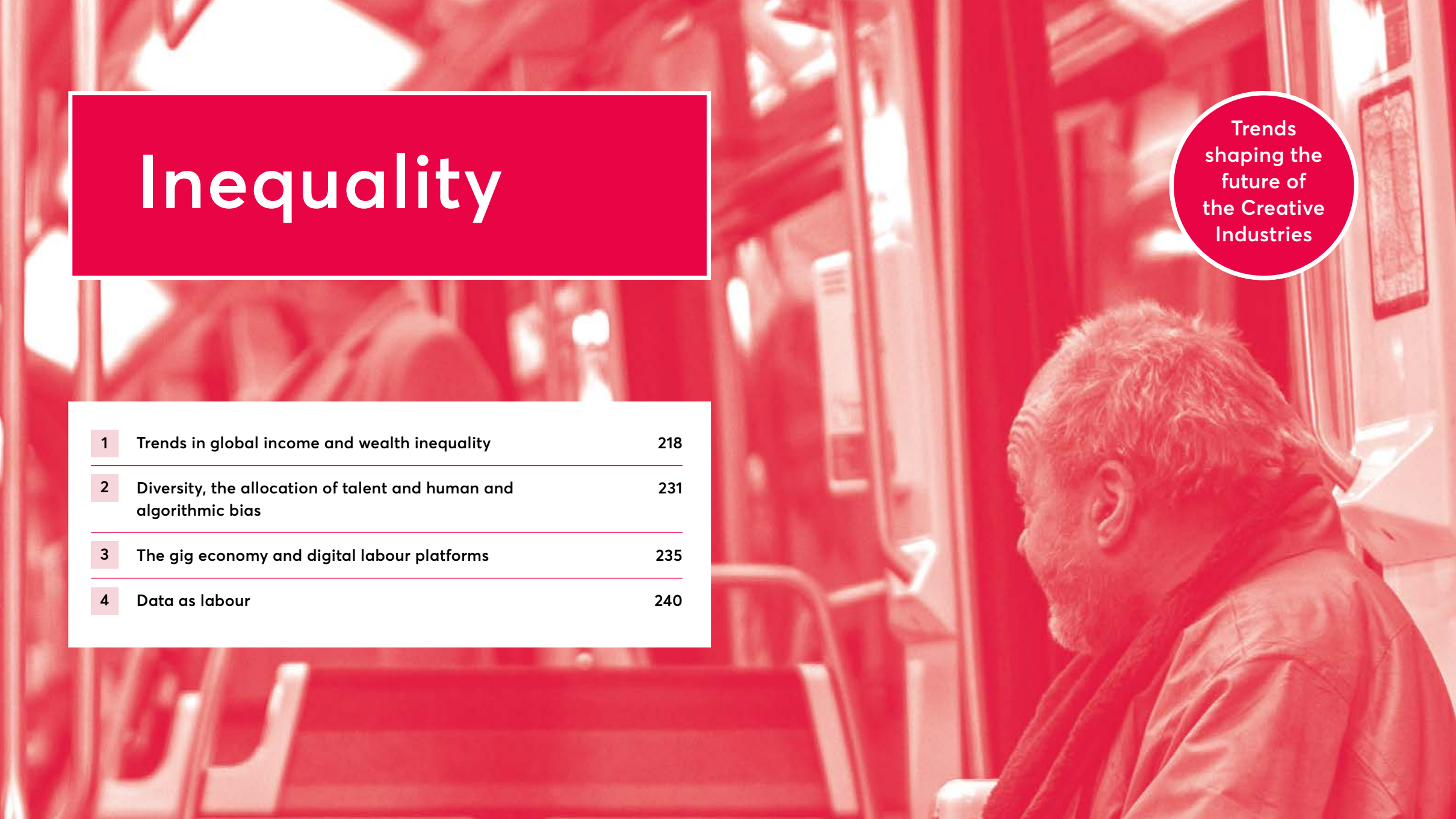
Source: AIIB (2020).

⚠ WHAT ARE SOME OF THE RISKS, UNCERTAINTIES AND TOPICS OF DEBATE RELATED TO THIS TREND? (CONTINUED)

- **Gaps in the amount of spectrum assigned to mobile operators for 5G and the ability of regulators to clear bands for 5G** (GSMA, 2022). To compensate for any shortfall, mobile operators will be required to densify their networks by deploying more small cells, though this imposes additional financial costs and regulatory burdens.
- **Poorly designed auctions**. Such arrangements have the effect of artificially inflating prices and inefficiently distributing scarce spectrum resources. On average, operators in developing markets pay 3x more for spectrum than in other countries (GMSA, 2018).
- **Regulatory and security concerns**. Oxford Economics (2019) estimates that restricting a key supplier of 5G infrastructure from participating in a network for non-commercial reasons increases investment would cost between 8-29% over the next decade.
- **Conservatism, short-term investment criteria and underappreciation of positive externalities of digital connectivity**. Conventional criteria support individual projects in more wealthy, urban areas with good short-term return, rather than projects in middle to low-income markets, and sub-urban and remote territories, with potentially significant long-term returns.
- **Insufficient capabilities to screen, plan and implement large infrastructure projects with commercial potential**.
- **Limits to how far governments with weak balance sheets can provide sovereign guarantees for projects**. In many developing countries, projects have been funded through equity investments, rather than debt financing which is far from efficient for infrastructure projects with large CAPEX expenditures.
- **Low commitment from multilateral development banks to digital infrastructure**. Financing is perceived to be the role of the private sector activity while some believe that there are more pressing concerns than projects that, in their eyes, will benefit only a small number of people.
- **Interdependencies between physical and digital infrastructure**. Infrastructure like data centres and competitive pricing of services relies increasingly on energy costs. Without cheap and reliable power, data centres are vulnerable to power shortages and load-shedding, increasing dependence on expensive diesel and battery-power alternatives.

Inequality

Trends shaping the future of the Creative Industries



1 Trends in global income and wealth inequality

Trends shaping the future of the Creative Industries

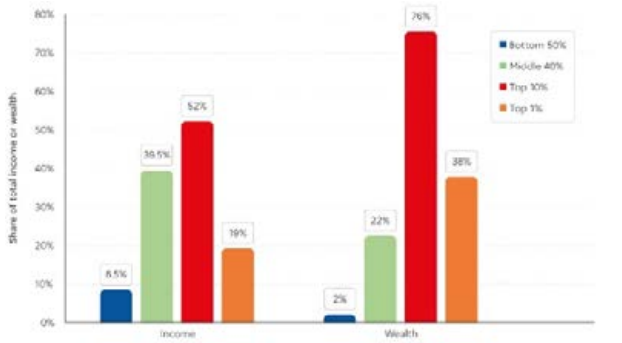
Inequality – a defining challenge of our times

WHAT IS THIS TREND?

Global income inequality is a stark feature of the economic landscape reflecting unequal relations both between countries and within them. Global inequality increased between 1820 and 1910 against the backdrop of colonialism and then levelled off at a very high level between 1910 and 2020. Since 1980, domestic inequality has grown in the vast majority of countries, but international inequality has fallen due to rapid growth in large emerging economies that hauled over a billion people out of extreme poverty. These two trends have offset one another so that in recent decades, global inequality has remained largely stable, though at a very high level. Today, the richest 10% of the global population captures 52% of global income, whereas the poorest half of the population takes just 8.5%. Global wealth inequalities are even more striking with the richest 10% of the global population owning 76% of all wealth and the poorest half possessing just 2% (WIR, 2022).

There is an intergenerational dimension to trends: as popularised by the idea of the 'Great Gatsby Curve', there is an inverse relationship between income inequality and intergenerational mobility with greater income inequality in one generation magnifying the advantages and disadvantages of having rich or poor parents for the economic status of the next generation (Durlauf et al., 2022).

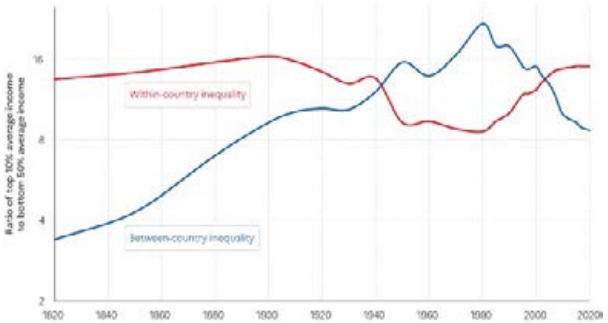
Global income and wealth inequality, 2021



Interpretation: *The global 50% captures 8.5% of total income measured at Purchasing Power Parity (PPP). The global bottom 50% owns 2% of wealth (at Purchasing Power Parity). The global top 10% owns 76% of total Household wealth and captures 52% of total income in 2021. Note that top wealth holders are not necessarily top income holders. Income is measured after the operation of pension and unemployment systems and before taxes and transfers.* **Sources and series:** *wir2022.wid.world/methodology*

Source: WIR (2022).

Global income inequality: Between-country vs. Within-country Inequality ratio (ratio T10/B50), 1820-2020



Interpretation: *Between country inequality, as measured by the ratio T10/B50 between the average incomes of the top 10% and the bottom 50% (assuming everybody within a country has the same income), rose between 1820 and 1980 and has since strongly declined. Within-country inequality, as measured also by the ratio T10/B50 between the average incomes of the top 10% and the bottom 50% (assuming all countries have the same average income), rose slightly between 1820 and 1910, declined between 1910 and 1980, and rose since 1980. Income is measured per capita after pensions and unemployment insurance transfers and before income and wealth taxes.* **Sources and series:** *wir2022.wid.world/methodology and Chancel and Piketty (2021).*

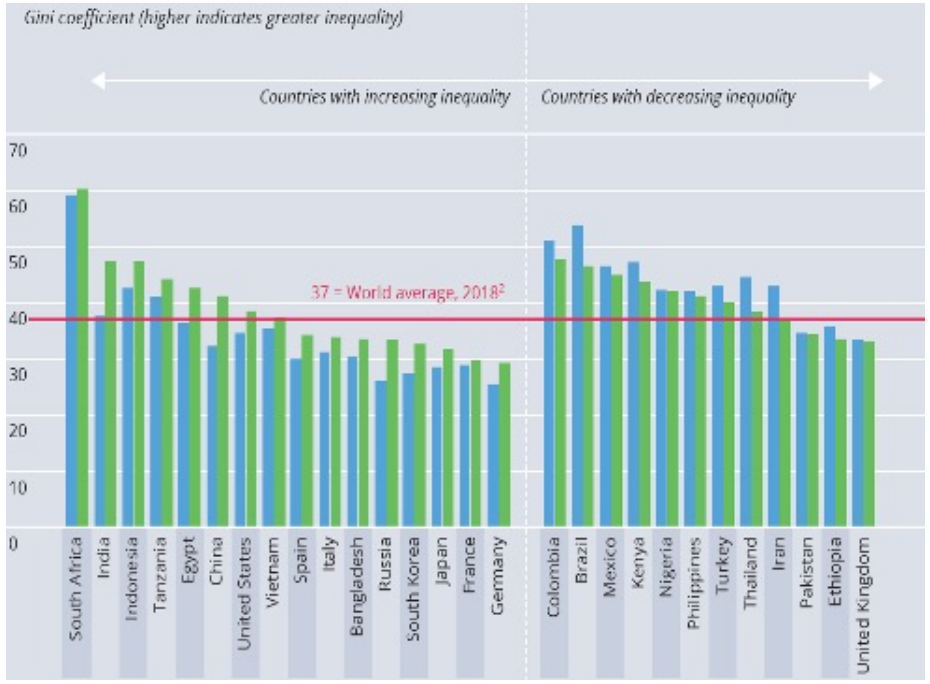
Source: WIR (2022).

WHAT IS THIS TREND? (CONTINUED)

The rise in inequality has not been uniform across countries. While technology and globalisation have created new sources of inequality between citizens, particularly between skilled and less skilled workers, political choices have also mattered for outcomes. Thus, among high-income countries, some are very unequal (such as the US), while others are relatively equal (e.g. Sweden). A similar relationship holds among low- and middle-income countries, with some characterised by extreme inequality (e.g. Brazil and India), others by relatively high levels of inequality (e.g. China) and others by moderate to relatively low levels of inequality (e.g. Malaysia and Uruguay) (WIR, 2022).

The bottom 90% in US and Western Europe has been increasingly squeezed. Between 2007 and 2016, the annual growth rate of real median incomes in OECD countries was 0.3% on average vs 1% between mid-1980s and mid-1990s and 1.6% between mid-1990s and mid-2000s. Middle- and low-income groups have turned to indebtedness to finance their consumption, fuelled by the savings of the top 1% (Mian et al., 2021). This has been accompanied by growing geographic and cultural divisions within countries, notably between small towns and rural areas on the one hand and large cities and surrounding conurbations on the other (Rodriguez-Pose, 2018). Specifically, in smaller towns and rural areas, there is a sense of loss and betrayal, a belief that the place people once called home has been ignored and allowed to perish. These divisions can have a significant impact on the distribution of opportunities and broader cultural preferences – social conservatism versus social liberalism – in ways that reinforce one another (McNeil et al., 2022). They have also driven divides in outcomes such as life expectancy and mental wellbeing (Case and Deaton, 2020).

Income inequality trends in selected large countries, 1990 and 2018



Source: WIR (2022).

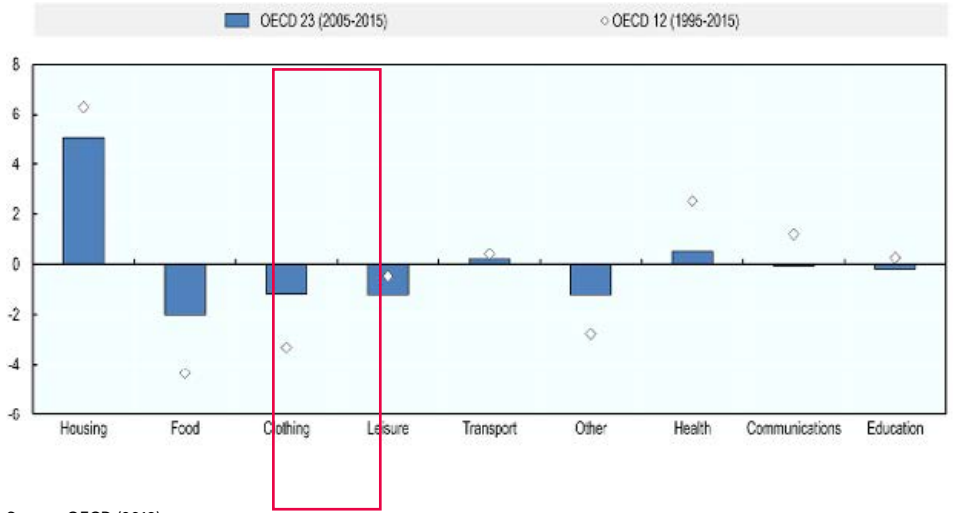
Consumers across income levels differ in their allocation of spending to creative goods

WHY DOES THIS TREND MATTER?

Demand for creative goods and services varies up and down the income ladder. A squeezed middle class can put pressure on budget shares for discretionary items as well on aggregate consumption (Krueger, 2012; Alichi et al., 2016; OECD, 2019). Income is positively associated with leisure spending. In the UK, the richest two deciles spend 4-5x as much on recreation and culture than those in the poorest decile and proportionately more of their total spending is in this category i.e. 16% for decile 9 and 14% for decile 10 (richest) compared with 10% for decile 1 (poorest) (ONS, 2020). Controlling for demographics, high-income households in US spent 174% more on entertainment than low-income households in 1980-1982 and 236% more in 2008-2010 (Aguiar and Bils, 2015). These divides may have widened during the pandemic as richer households saved more and gained more in net wealth. While some savings have already been drawn down and/or set aside for a rainy day, they still provide firepower for consumption. Citi (2023) estimates that these funds are close to 6% of GDP in the US, around 7% of GDP in the Eurozone, nearly 8% of GDP in the UK and as high as 9% of GDP in Japan.

There are also differences in how groups consume creative goods and services. Hargittai and Hinnant (2008) distinguish between the capacity enhancing and recreational uses of social media. They find that economically advantaged groups are more likely to use social media in ways that offer opportunities for upward mobility compared with those from less privileged backgrounds. This matters because social networks are often a rich source of weak ties providing access to novel information outside an individual's close contacts and are associated with improvements in job opportunities and wages (Eagle et al., 2010; Caldwell and Harmon, 2019; Saint-Jacques et al., 2019).

Percentage point changes in shares by item of middle income household budgets, OECD average, 1995-2015 and 2005-15



Source: OECD (2019).

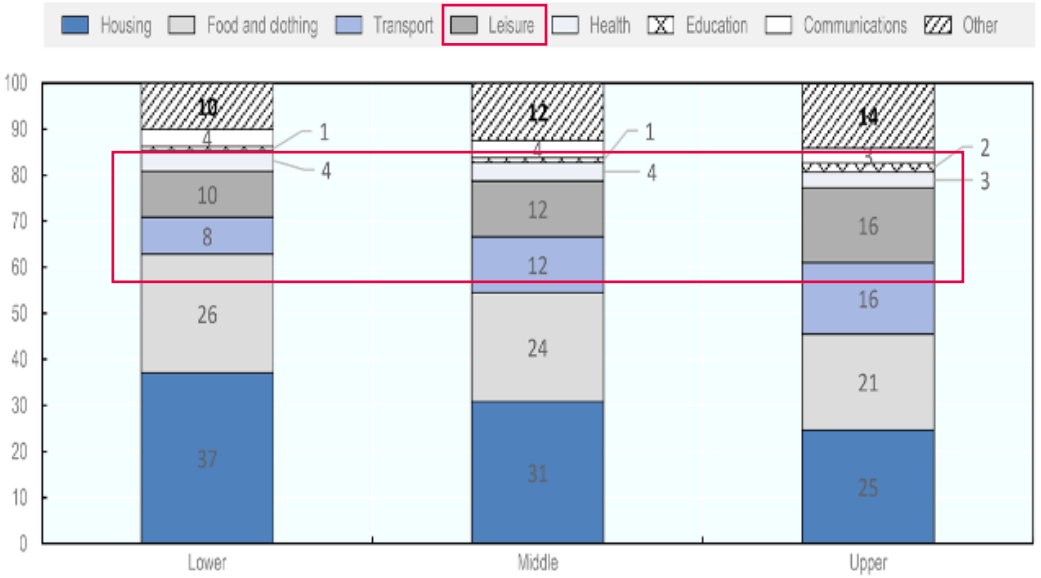
WHY DOES THIS TREND MATTER? (CONTINUED)

Cost of living pressures have weakened the discretionary spending outlook for low-income households. In lower income countries, higher food prices have hurt consumers' purchasing power and increased food insecurity. Around four-fifths of low-income countries and more than 90% of lower-middle-income countries had seen year-on-year food price increases in excess of 5% at the end of 2022 with food inflation reaching 285% and 158% in Zimbabwe and Venezuela respectively (WEF, 2023). Households in high-income countries have been exposed to the rise in energy prices and more recently higher mortgage rates. In the UK, basic living costs have recently made up 53% of household budgets for the lowest income cohort versus 34% for highest income cohort. Lower income households also saved less during the pandemic, providing less firepower to smooth over real income pressures. Against this backdrop, households have made tougher choices about how to prioritise spending on discretionary items. Some categories have proven more resilient than others (JPM, 2022). For example, a post-pandemic desire to make up for lost time has supported travel activities, particularly overseas holidays. There is also some anecdotal evidence for a 'lipstick effect' with consumers turning to small indulgences such as face moisturisers, chocolate and coffee to cheer themselves up in more difficult times (Chan, 2023).

Thanks to higher disposable incomes, luxury consumers should feel the pinch from inflation less than other demographics. This should translate into the relative resilience of the premium end of the market. It should also support goods and services that have greater pricing power and can pass through costs. By contrast, demand for affordable alternatives such as fast fashion appears more vulnerable as consumers have been simply buying less rather than trading down (BofA, 2022).

How these trends play out will depend on evolving macroeconomic conditions. Headline inflation is expected to moderate in the short- to medium-term, though it is not inconceivable that underlying inflation becomes more persistent – a product of, among other things, the residual effects of the supply shock from the pandemic and war in Ukraine and wider geopolitical threats; a shift in economic and philosophical focus from efficiency to resilience; years of underinvestment in production capacity and an ageing workforce. A second uncertainty is whether central banks can bring inflation under control by raising interest rates without pushing economies into recession that would put pressure on discretionary spending (BofA, 2022). Finally and more generally, an environment in which interest rates stay higher for longer will affect capital costs and availability, interest expenses, business valuations and exit liquidity.

Items as shares of household budgets by income class, OECD average, 2016 or latest year available



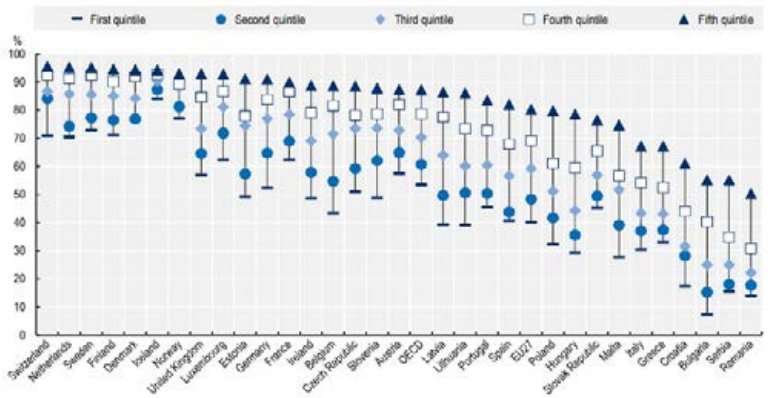
Source: OECD (2019).

Consumers across income levels differ in their allocation of time to creative activities

WHY DOES THIS TREND MATTER? (CONTINUED)

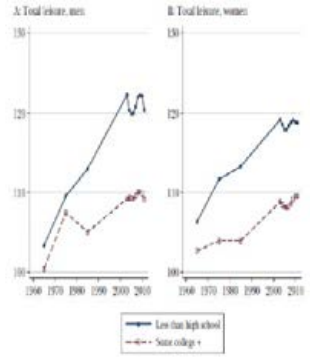
Inequality in consumption of goods and services is partly offset by greater equality in leisure time. In the US, consumption of leisure has increased among low-socioeconomic status individuals at a faster pace than among higher educated. This is principally accounted for by an increase in time devoted to passive leisure activities (watching television, listening to radio, relaxing and others). By contrast, the level of cultural participation increases with the level of educational attainment and income status. In many countries, the participation gap is very large while in a few others, notably the Nordic countries, it is narrower. In Icelandic, there is a phrase, "ad ganga ed bok I maganum", loosely translated as "everyone has a book in their stomach" that attests to this more egalitarian spirit. It is reflected in the country's high publishing rates for fiction and its wider home to creatives from Halldór Laxness to Björk to Ólafur Elíasson to Víkingur Ólafsson (BBC, 2013; Nelson, 2015). Mak et al. (2020) also find that incomes predicts engagement with, and participation in arts and cultural activities. They also highlight evidence of lower cultural engagement among individuals from minority backgrounds that may be due to the cost of participating or attending but may also reflect concerns about feeling uncomfortable and out of place. Policy action is more urgent in countries with low aggregate participation rates, especially as participation can help cultivate cultural tastes and preferences and ultimately influence the depth of talent pipeline going into the sector (OECD, 2022).

Percentage of individuals who participated in cultural activities at least once during the year, by income quintile, 2015



Note: Persons aged 16 and over. Cultural participation includes visits to cinemas, live performances, and cultural sites. Source: OECD (2022).

Trends in Total Leisure Time



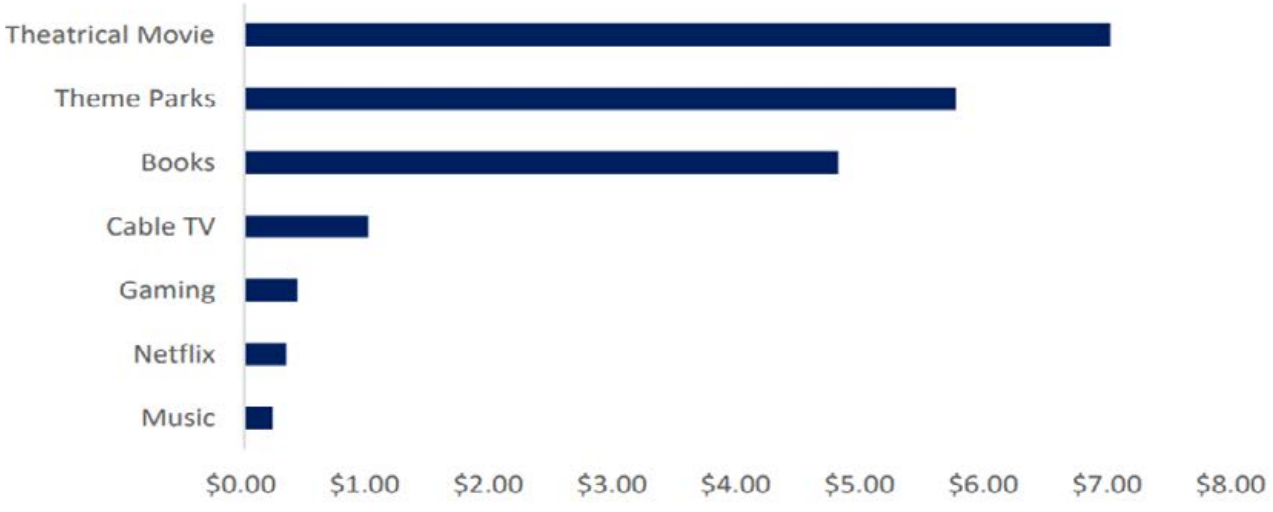
Decomposing Total Leisure (in hours per week)

Based on data from the 1965-66 Americans' Use of Time, 1975–76 Time Use in Economics and Social Accounts, 1985 American Use of Time, and the 2003–11 integrated American Time Use Survey. Source: Attanasio and Pistaferri (2016).

WHY DOES THIS TREND MATTER? (CONTINUED)

Other things being equal, lower income groups are more likely to place more weight on considerations such as cost per hour consumption (Deutsche Bank, 2022).

Cost per hour consumption for selected sources of entertainment



Source: Deutsche Bank (2022).

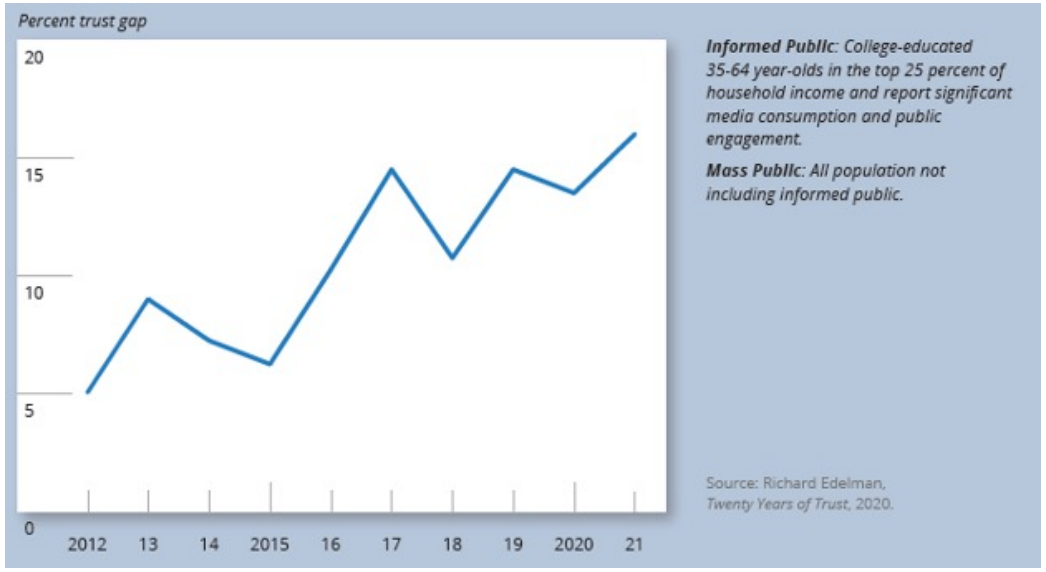
Social mobility and inclusion have become systemic issues for the creative industries

WHY DOES THIS TREND MATTER? (CONTINUED)

People are increasingly worried about inequalities of outcome and opportunity. Four in five people in the OECD feel that income disparities are too large in their country (OECD, 2021). Inequalities are felt politically with evidence that governments' responsiveness to citizens' preferences are highly skewed in favour of affluent citizens who tend to be less supportive of social spending (Bartels, 2017). Perceptions of declining opportunity have also provided fertile ground for populist movements and charismatic styles of leadership that seek to channel citizens anger while promising to protect them against global threats (Hochschild, 2016; Autor et al., 2020; Edelman, 2020). This sentiment can be seen in the divergence in trust between the informed public and mass population. Education has become a major fault line in political attachments, though it is worth remembering that the university educated are still a minority of adults everywhere (Wolf, 2023).

In some countries, anger has been directed at cultural institutions that are accused of overlooking, sneering at and looking down on mainstream interests and traditional values (Moran and Littler, 2020). They have found themselves in the crosshairs of a wider culture war involving everything from the historical interpretation of statues and artefacts to the movement to ban books from school libraries to the backlash against sustainable investing (Friedman and Johnson, 2022; Kuper, 2023). This is consistent with cross-country evidence that political parties tend to highlight values-based issues when inequality spikes (Tavits and Potter, 2015). At its most extreme, populist sentiment has morphed into an 'everything conspiracy', drawing strength from the anti-lockdown protests but since incorporating other beliefs such as climate change denialism to attack government policy, no matter how innocuous, as a threat to personal freedom (Venkataramakrishnan, 2023).

Global average trust gap between informed public and mass public in four key institutions: business, media, government and NGOs



Source: NIC (2021).

WHY DOES THIS TREND MATTER? (CONTINUED)

The creative industries are grappling with challenges of social mobility and underrepresentation. Data from the UK shows that people from privileged background are twice as likely to be employed in the creative industries than their working-class counterparts. To ensure that they were as socio-economically diverse as the rest of economy, the creative industries would need to employ 250,000 more working-class people (Carey et al., 2021). Issues of class interact with gender, race, disability, skills and place, reinforcing disadvantage. Notwithstanding data limitations, similar issues are found in other countries, albeit to different degrees and with different trajectories (Snowball et al., 2021).

A lack of diversity and inclusion is a matter of fairness and efficiency. It artificially reduces the pool of talent available to the sector and makes it harder for the sector to reflect the communities and consumers it serves. McKinsey (2021) estimates that the US film and TV industry is leaving $10bn annually on the table due to a lack of Black representation in content development, financing, marketing and distribution. Wider evidence tells a similar story: in the US, children from high-income (top 1%) families are 10 times as likely to become inventors as those from below-median income families. If women, minorities, and children from low-income families were to invent at the same rate as white men from high-income families, the economy would boast four times as many inventors as there are today (Bell et al., 2019).

Likelihood of people from different socio-economic backgrounds being employed in the Creative Industries

Source: Carey et al. (2021).

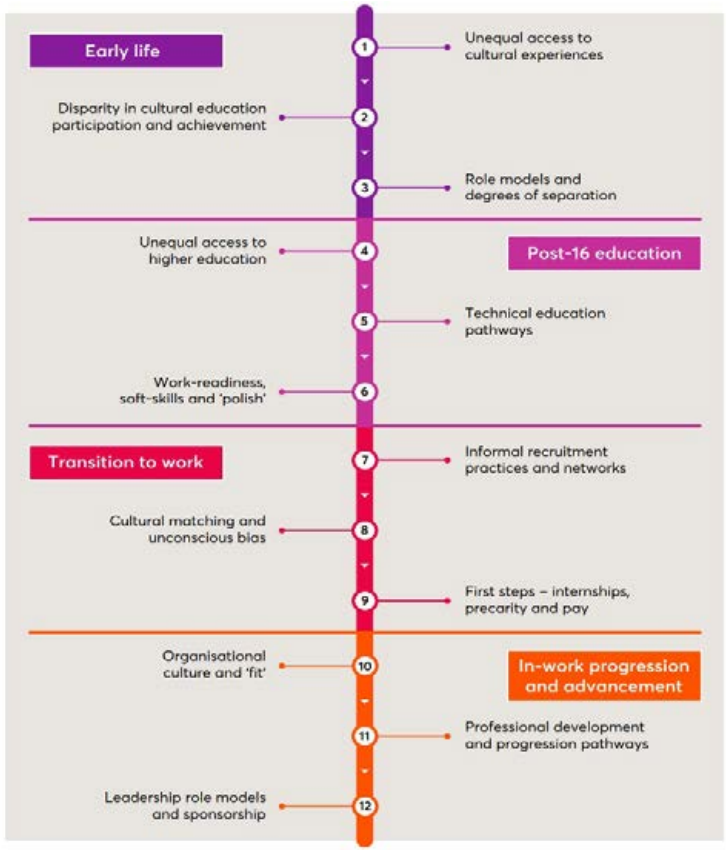
WHY DOES THIS TREND MATTER? (CONTINUED)

The persistence of these inequalities compounds the challenges facing industry. Disparities in opportunity start early in life as individuals from higher socioeconomic backgrounds can benefit their parents' resources but also the role models, beliefs and expectations they set for them (CASE, 2010; Bell et al., 2019; Choi et al., 2019). Models of skills acquisition underscore how such experiences provide a foundation for future success: early exposure fosters not only preferences and capabilities but also perceptions of competence that make learning at later ages more efficient and, therefore, easier and more likely to continue (Heckman, 2008). The accumulated weight of family inputs poses a challenge for schools in offsetting these advantages and supplying students with creative competences, particularly at a time when STEM subjects enjoy a privileged status in education policy.

This is reinforced by geographical divides between urban and nonurban areas that can skew access to cultural infrastructure, connectivity and other valuable resources. In England, one estimate from 2017 suggests that £700mn would be needed to bridge the North-South divide in public funding for the arts (IPPR, 2017). This point has not been lost on policymakers who at times have emphasised inclusion in cultural investment decisions. A good example is the Works Progress Administration's Federal Art Project (FAP) that was implemented in the 1930s as part of Roosevelt's New Deal. Inspired by Progressive era philosophers such as John Dewey and John Cotton Dana, it sponsored local and national arts works and established thousands of local art centres around the country, laying the groundwork for the emergence of Abstract Expressionism and the success of the post-war American art market (Russo, 2018).

Work practices in creative industries also make achieving equity a complex, system-level challenge. Unpaid internships, low initial pay and the need to build a portfolio can be significant barriers to entry since upfront costs are not recouped until much later in individuals' careers (Sutton Trust, 2017; Liu et al., 2021). Many creative workers have complex, nonstandard and mismatched job experiences, departing from common conceptions of a 'good' CV that can raise doubts among hiring professionals (Pedulla, 2020). Others point to tight-knit networks and a culture of studied informality – an unwritten code of dress, humour and communication that enforces subtle forms of exclusion and discrimination (Friedman and Laurison, 2019). Transparency and uniformly enforced HR processes and rules are often absent in creative organisations, leaving more room for bias in decision-making (Rivera, 2012; BBC, 2019). This explains the interest in pay transparency tools to reduce inequalities within the workplace (OECD, 2021; Bosch and Barit, 2021; Baker et al., 2023). Each of these frictions is significant in its own right but they also take an aggregate toll: it is estimated that black professionals in film and TV regularly encounter close to 40 specific pain points as they seek to build careers in the industry (McKinsey, 2021).

Primary points of disadvantage in the creative industries



Source: PEC (2021).

WHY DOES THIS TREND MATTER? (CONTINUED)

Features of creative occupations are not family-friendly, impacting women and other groups. Goldin (2021) argues that the gender pay gap arises not because men and women are paid differently for the same work, but because many jobs disproportionately reward individuals who are around for more hours or at particular hours, penalising groups who take time off for family or opt for a better work-life balance. This burden is particularly heavy for women who perform on average 76% of all unpaid care work. On current trends, it will take until year 2228 to close the gender gap in unpaid care work as women globally average 4.4 hours of unpaid work compared with 1.4 hours for men (JPM, 2023).

Many creative occupations exhibit these 'greedy' characteristics in abundance: they involve high pressure around project deadlines and the inability, real or perceived, to substitute more senior roles to maintain project oversight or key client, design team or contractor relationships (RIBA, 2019). Workers are also often tied to idiosyncratic creative tasks for which other workers are not close substitutes, again rewarding continuity on the job. This is borne out by the data: meeting tight deadlines is roughly 2 standard deviations higher in creative occupations like Advertising accounts managers and creative directors; Journalists, newspaper and periodical editors; Arts officers, producers and directors; Actors, entertainers and presenters and Graphic designers compared with the economy-wide average. These scores are also one standard deviation higher than professions in business, health, technology and law that are typically characterised as high-octane. How far new technologies and work from home arrangements can lower the costs of flexibility and temper these features merits further investigation (Gavett, 2021).

In addition to a wage penalty, these features may drive poor working conditions in particular subsectors. Crunch, or forced overtime, is a deep-seated problem in the games industry (Cote and Harris, 2020; Thomsen, 2021). Activision Blizzard was sued by the state of California in 2021 over its workplace culture and claims of sexual harassment and discrimination. More widely, doing creative work can involve profound ambivalence: workers experience excitement and aesthetic engagement on the one hand, but it occurs alongside precarity and alienation as a result of intense market demands on the other (Siciliano, 2021; Carey et al., 2023).

O*NET features means (standardised) for UK creative occupations vs. all occupations

O*NET characteristics	DCMS creative occupations (n=30)	DCMS creative occupations (excluding crafts n=25)
Time pressure	0.339	0.478
Contact with others	-0.333	-0.074
Establishing and maintaining interpersonal relationships	0.382	0.716
Structured vs. unstructured work	-0.004	0.123
Originality	1.043	1.328

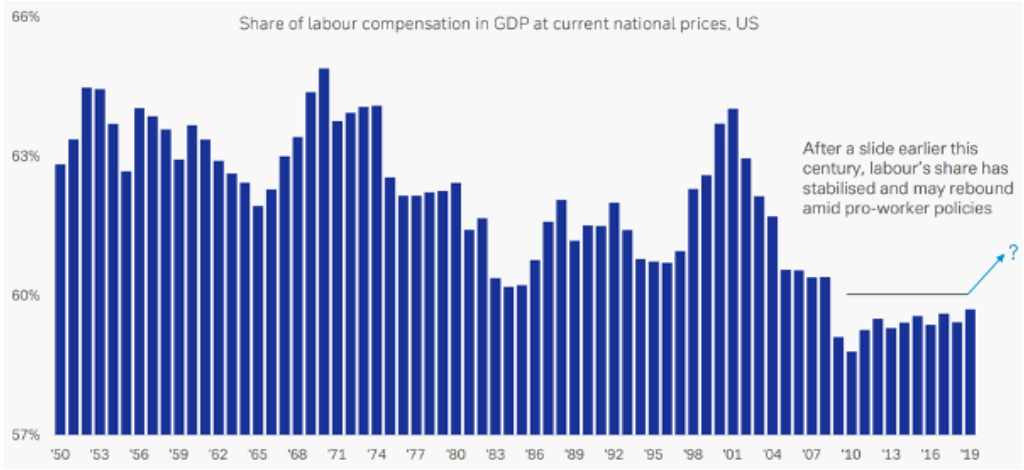
Each of the O*Net characteristics has been standardised to have a mean of 0 and a standard deviation of 1. Scores are provided for creative occupations, including and excluding craft-based occupations that are classified as having low levels of creativity and are noisy from a classification and crosswalk perspective. Higher scores indicate that creative occupations exhibit these characteristic to a greater degree than other occupations. Other things being equal, each of these characteristics should produce a less linear relationship between hours and earnings and in theory a larger gender wage gap. Source: Goldin (2014); author's calculations.

The future of inequality

⚠ WHAT ARE SOME OF THE RISKS, UNCERTAINTIES AND TOPICS OF DEBATE RELATED TO THIS TREND?

Inequality trends are subject to a number of uncertainties. Widening gaps in income and wealth around the world are not an unavoidable by-product of technological change and globalisation but are the consequence of choices such as the progressivity of tax systems, trade union density, minimum wage regulation, investment in public goods and even the background of managers (Saez and Zucman, 2019; Acemoglu et al., 2022). As Ruffer (2023) observes, the broader canvas on which these trends have played out – the tug of war between investors and workers for the greater share of prosperity – is today in a state of flux. Over the past 40 years, economies have completed a cycle in which capital has been in the box seat. Indeed, some evidence suggests that corporates in developed economies have taken advantage of the pandemic and geopolitical uncertainty to push up prices beyond those justified by cost pressures to expand profit margins (Edwards, 2023). If true, it is a trend that could trigger a backlash. At the same time, ageing, deglobalisation and a shrinking global labour force are trends that could shift the balance in favour of workers while periods of high inflation have coincided with an increase in the bargaining power of labour as workers take more forceful steps to protect real wages. Even in countries where unionisation has been weak, it is possible to find evidence of change. This can be seen in the US, where public support of labour unions is today in 2023 back at 1965 levels (Barclays, 2023). The creative industries have not been exempt from these trends: consider Hollywood where thousands of TV and movie screenwriters went on strike in May 2023 for the first time in 15 years after contract negotiations with studios collapsed. This was followed by strike action from the actors' union SAG-AFTRA and its 160,000 members over residuals – the payments that performers receive for reruns and other airings of films and TV shows and issues such as the use of AI by studios to create digital doubles of actors and accompanying questions of ownership and control. If history is any guide, these cycles can last a generation. They may be accompanied by feedback mechanisms such as automation and the substitution of cheaper machines for labour that seek to preserve the status quo and the share of income going to capital that, in turn, give rise to further contestation (Acemoglu and Johnson, 2023).

Has the decades-long decline in labour's share in income bottomed?



Source: Deutsche Bank (2022).

⚠ WHAT ARE SOME OF THE RISKS, UNCERTAINTIES AND TOPICS OF DEBATE RELATED TO THIS TREND? (CONTINUED)

The conventional wisdom that inequality is the price paid for faster growth has come under challenge in recent years. There is an emerging consensus that, beyond a certain level, income equality can become a drag on economic performance as well as a better understanding of the policy tools to combat it (Blanchard and Rodrik, 2019). The taxation of multinationals has attracted substantial attention in recent years, underlined by the agreement, signed by more than 130 countries and jurisdictions to introduce a global minimum corporate tax rate of 15% on multinationals. Modelling work suggests that a modest increase in progressivity of the tax system, including shifting taxes onto land could generate significant revenues for governments to reinvest in education, health, culture and widening opportunities (Kumhof et al., 2021; WIR, 2022). Beyond these efforts, there has been experimentation aimed at addressing barriers to participation in the creative industries, including new approaches to professional qualifications and credentialing (e.g. bootcamps in createch). Policies that push back on the insecurity of creative work can help the level playing field – for example, futures markets for occupational incomes would allow individuals to hedge the risk of going into an occupation or sector whose future is uncertain (Gallup-2U, 2022; Shiller, 2022). The RadicalxChange (RxC) movement -a community of artists, researchers, entrepreneurs and activists- is trialling new ideas that seek to channel the flexibility and dynamism of markets in ways that produce more prosperous and fair outcomes (Posner and Weyl, 2018). For example, it proposes the use of quadratic financing that enables a community to express its preference for a project, creative or otherwise by amplifying each donation so that a project with a large number of backers will benefit the most rather than one that only has a few wealthy backers. Another area of interest is workplace democracy and employee ownership, particularly in sectors that thrive on intangible assets and human capital.

Finally, research reveals that the ability to form friendships across income and class lines is an important determinant of upward mobility -on a par with school quality, family structure and job availability- and that participation in the arts and creative activities is particularly useful in building this type of social capital (Malacarne, 2017; Chetty et al., 2022).

In each case, policymakers will need a clear understanding of the interactions between policy, institutions and the wider economy, including potential trade-offs between high-return projects in more productive areas and lower-return projects elsewhere designed to narrow disparities and the importance of preserving incentives for investment where relevant.

History is nonetheless a sobering reminder that delivering lasting reductions in inequality may be difficult in the absence of more violent shocks. Scheidel (2018) argues that economic inequality has rarely shrunk in a meaningful way without a major crisis such as war, pandemic, civil unrest and state failure. By contrast, peaceful solutions such as political reform and the extension of the franchise, while supporting changes in taxation and redistribution, have had a more ambiguous effect on inequality (Acemoglu et al., 2015). Under a business-as-usual scenario, global inequality looks set to increase further and may be overlaid with new sources of inequality as a result of trends like advances in reproductive medicine and genome editing technology (Metzl, 2019; Isaacson, 2021).

A taxonomy of policies affecting inequality

		At what stage of the economy does policy intervene?		
		Pre-production	Production	Post-production
What kind of inequality do we care about?	Bottom	Endowment policies (health care, education); universal basic income	Minimum wage; job guarantees	Social transfers (e.g., Earned Income Tax Credit); full-employment macro policies
	Middle	Public spending on higher education	"Good jobs" policies; industrial relations and labor laws; sectoral wage boards; trade agreements; innovation policies; employee ownership	Safety nets; social insurance policies
	Top	Inheritance/ estate taxes	Regulations; antitrust laws	Wealth taxes

Source: Blanchard and Rodrik (2019).

2 Diversity, the allocation of talent and human and algorithmic bias

Growing attention to the risks of algorithms whose 'black-box' objectivity can hide and naturalise discriminatory behaviour

WHAT IS THIS TREND?

Objective, data-driven and informed decision-making has been the long-standing attraction of AI. But it is neither built nor implemented in a vacuum, neatly sealed off from wider societal realities. Bias can creep in at many stages of the machine learning process – from collecting data that is unrepresentative of reality or reflects existing prejudices to the design of algorithmic models. A lack of diversity of experience, expertise and background can prevent programmers from moving beyond a narrow concern with system optimisation or taking into account risks beyond a small subset of users (Cowgill et al., 2020; Schwartz et al., 2022). These risks have grown with the race to make large language models such as ChatGPT that are dependent on ever-larger datasets that are more difficult to document and the growing influence of industry in AI research that has made public interest alternatives for important AI tools scarcer. Consider how industry's share of the biggest AI models has gone from 11% in 2010 to 96% in 2021 (Bender et al., 2021; Ahmed et al., 2023).

WHY DOES THIS TREND MATTER?

Bias in algorithms can accumulate over time and affect people's lives, potentially leading to discrimination. It can also lead to poor business decisions as well as exposing companies to reputational damage with negative effects for sales, recruitment and retention. A good example is how software used by many US hospitals has deprioritised care for black patients. Bias occurs because the model uses health costs as a proxy for health needs. Because of entrenched racial and socioeconomic barriers, less money is spent on black patients who have the same level of need and the algorithm thus mistakenly believes they are healthier than equally sick white patients. Similar biases have been uncovered in online recruitment tools, facial recognition, word associations, online ads, criminal justice, access to credit. In a high-profile case, Amazon was forced to shut down its own AI recruitment tool in 2018 after it was found to be biased against women. Evidence is more mixed on the existence of bias in recommendation systems on streaming platform such as music (Hesmondhalgh et al., 2022). Related to the idea of algorithmic bias is algorithmic exclusion – outcomes where people are excluded from algorithmic processing whether due to sparse or missing data, meaning that the algorithm cannot make a successful prediction about them (Tucker, 2023).

Captions by Norman AI

MIT's Norman experiment is a vivid case-study of the dangers of AI when unrepresentative or incomplete data is used to train algorithms. Researchers at MIT Media Lab developed Norman, a machine-learning algorithm fed on data from darkest corners of social media. It was then asked to interpret Rorschach inkblots, generating unsettling captions, especially when compared with a standard AI's interpretation. Source: MIT.

⚠ WHAT ARE SOME OF THE RISKS, UNCERTAINTIES AND TOPICS OF DEBATE RELATED TO THIS TREND?

The costs and benefits of algorithms need to be weighed against their alternative – human decision-making. Among the more interesting insights generated by neuroscience is that harmful biases may operate even among decision-makers who are not prejudiced and indeed actively attempt to avoid prejudice. This dichotomy occurs because different regions of the brain are activated in conscious and unconscious processing and the vast sum of operations of the mind occur below the level of conscious awareness. Implicit biases are more likely to influence behaviour under conditions of ambiguity, high time pressure and cognitive load or inattentiveness to the task – conditions that are often present in creative tasks (Bertrand and Duflo, 2016).

More generally, **creative settings are not free from bias**. Using 1.5 million auction transactions in 45 countries, Adams et al. (2018) find a 47.6% discount in auction prices for paintings by women despite the fact that in experiments, participants are unable to guess the gender of an artist simply by looking at a painting. Bocart et al. (2022) also report significant price differences across gender for artworks, albeit the discount is smaller that may be due to differences in sample composition. Cameron et al. (2019), in contrast, find a premium for female artworks traded at auction within a small sample of Yale graduates but also show that art by female graduates is less likely to sell at auction in the first place. This is consistent with selection effects: institutional barriers to female access to the art market such as educational opportunities and cultural recognition have imposed more rigorous quality filters on female artists compared to male artists, meaning when their artworks do make it to market, they are of higher quality and sell at a higher price. Building on these insights, studies show how these biases can be partly mitigated. Goldin and Rouse (2000) document the benefits of introducing blind auditions in orchestras and related settings.

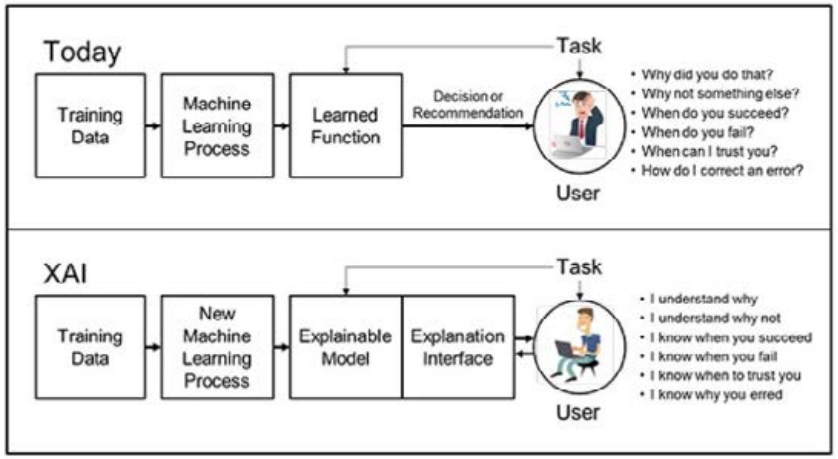
By contrast, the primary advantage of algorithms over humans is their relative transparency. It is possible to fix biases by simply changing the training sample, choice of outcome and candidate predictors and observing the resulting behaviour. By contrast, efforts to tackle implicit bias have met with mixed success (Chang et al., 2019). AI is also more likely to improve decisions when training data is sufficiently noisy, enabling experimentation which is a complement to learning; otherwise algorithms may codify or exacerbate existing biases (Cowgill, 2020).

⚠ WHAT ARE SOME OF THE RISKS, UNCERTAINTIES AND TOPICS OF DEBATE RELATED TO THIS TREND? (CONTINUED)

Whether algorithms can be reshaped in less biased ways is an open question and will depend on the efforts of civil society, regulators and policymakers. Early technical progress is underway: processes such as test and evaluation, validation, and verification (TEVV), participatory design techniques and multi-stakeholder approaches and a human-in-the-loop are useful steps for improving the fairness of algorithms and their transparency and explainability. Explainable AI (XAI) and the use of methods such as SHAP values hold particular promise for ensuring trust in models, given that the psychology of legitimacy and acceptance of decisions turns as much on procedural as instrumental considerations (Tyler, 2006).

Many commentators think that international cooperation, reinforced by national guidance and regulation are a priority to ensure the ethical development and deployment of AI (Ho et al., 2023). For example, the EU's new content moderation law, the Digital Services Act, introduces annual audit requirements for the data and algorithms deployed by large tech platforms while its proposed AI Act would allow authorities to audit AI systems. There is an ongoing debate about the appropriate regulatory philosophy, with some invoking the precautionary principle that would require the preapproval of algorithms before use in critical situations and others calling for a more flexible approach, based on 'governance by accident' in force in the aviation industry that would permit authorities to mandate changes for all industry players once a fault is detected. Finally, there is scope for market-led solutions: some companies are organising bounty competitions that offer monetary rewards to anyone who can show how one of their algorithms might be harmful with the hope that they will ultimately develop a skills base to carry out audits (Heikkilä, 2022). Inspired by the Green Revolution of the 1960s and 1970s, there are also efforts from grassroots organisations to prioritise diversity, equity and appropriate technological investments. For example, the start-up Lelapa, backed by Mozilla Ventures and Atlantica Ventures, is building a research lab to serve African businesses and non-profits. Algorithms are being trained on local data and languages in order to better serve communities that might otherwise be overlooked -whether it is to improve translation and other forms of automated text processing, help with the repatriation of cultural artefacts, design financial services and literacy bots or connect mothers with healthcare professionals.

Standard Machine Learning (ML) vs Explainable AI (XAI)



Source: DARPA (2018).

3 The gig economy and digital labour platforms

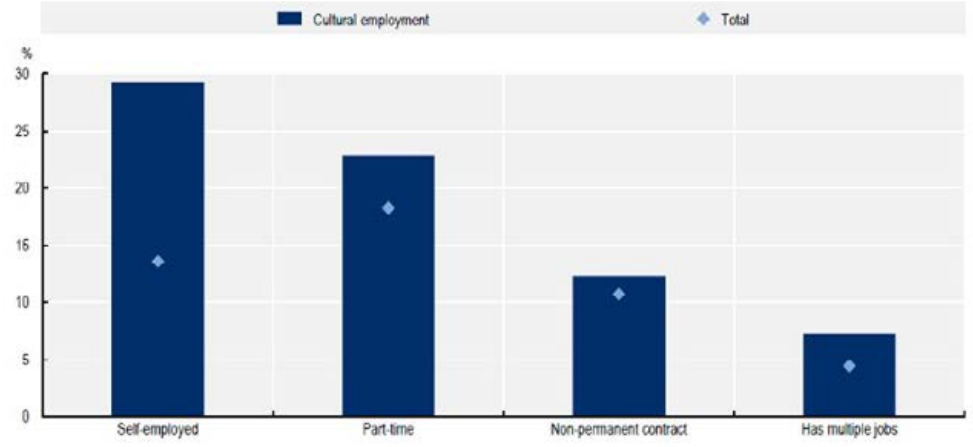
Trends shaping the future of the Creative Industries

The importance of non-standard work – part-time, gig or temporary work or self-employment – has grown steadily in the post-2008 recession period

WHAT IS THIS TREND?

Non-standard work is a distinguishing feature of the creative industries. This is rooted in the project-based nature of activity, encouraging temporary forms of organisation and work. The rise of digital labour platforms that coordinate the provision of work has reinforced this trend. Digital labour platforms have expanded across multiple sectors and countries: EU COLLEEM survey (2018) finds creative and multimedia tasks make up 31.5% of all platform work behind only clerical tasks (45.7%). Examples include Fiverr, Behance, Upstart and Workana. In 2019, Argentinian startup Workana connected over 1.8mn freelancers across Latin America and Southeast Asia in graphic and web design, mobile and web application development, translation and marketing projects. These platforms are increasingly catering to more complex needs reflecting improvements in matching technology to pair workers and clients and other innovations such as digital IDs and flash organisations that will open up further ways of working (Valentine et al., 2017; MGI, 2019).

Share of workers who are self-employed, work part-time, have non-permanent contracts, or have multiple jobs, OECD average, 2020



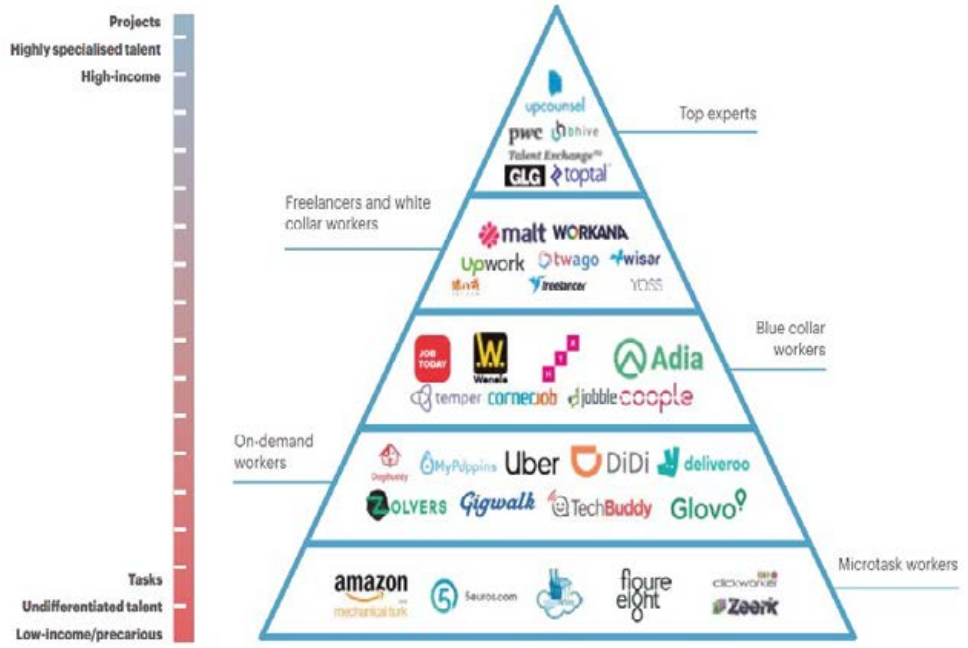
Note: OECD average includes Austria, Belgium, Canada, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, the Netherlands, Norway, Poland, Portugal, the Slovak Republic, Slovenia, Spain, Sweden, Switzerland, Turkey, the United Kingdom, and the United States. Data for Canada, the United Kingdom, and the United States are from 2019.
Source: OECD calculations on Eurostat (2021[3]), *Cultural Employment Statistics*, https://ec.europa.eu/eurostat/web/culture/data/database, American Community Survey, 2019, and Canadian Labour Force Survey, March 2019.

Source: OECD (2022).

WHY DOES THIS TREND MATTER?

Online gig platforms have enabled new forms of flexible work and real-time hiring, expanding opportunity and increasing efficiency. They reflect and reinforce a wider trend towards a Everything-as-a-Service (EaaS) economy. The high degree of standardisation that has emerged across communications, data systems and user interfaces now makes it possible to outsource nearly any business function, permitting organisations, especially micro-businesses to tap expertise that would otherwise be beyond their reach or scale (Goldman Sachs, 2018). Against this backdrop, new service providers have been able take over parts or entire creative and technical functions for clients such as Keywords Studios in the video games industry.

Typology of digital labour platforms



Source: Digital Future Society (2020).

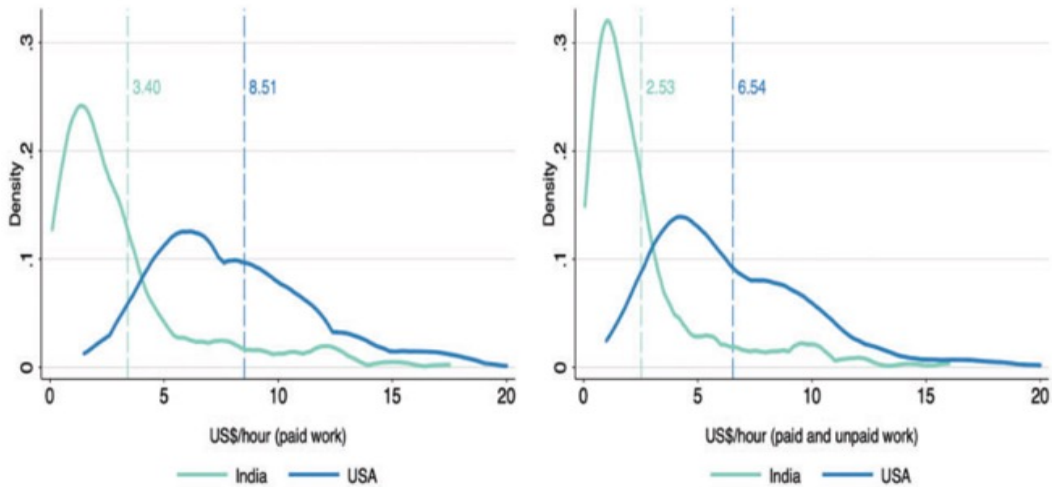
⚠ WHAT ARE SOME OF THE RISKS, UNCERTAINTIES AND TOPICS OF DEBATE RELATED TO THIS TREND?

Despite rapid growth, the overall scale of activity remains modest. It is estimated at 1-3% of overall employment (full-time and occasional), including around 40mn platform workers in the Global South (Digital Future Society, 2020).

Working conditions on online platforms have raised concerns about the treatment of gig workers. This is partly attributable to the monopsony power that employers wield in online labour markets (Dube et al., 2020). One study of graphic design contests on an online marketplace found that designers collectively incur far greater costs than prizes justify (Dechenaux et al., 2015; Gross, 2018). How far this participation is offset by non-pecuniary and longer term benefits such as experience, portfolio-building, reputation and learning from feedback in light of their importance in the creative industries is an open question.

The risks and costs of online platforms are borne disproportionately by workers in developing countries. Absolute earnings for workers in developing countries for microtasks are much lower than those for US and European workers, though after accounting for differences in PPP, some can earn higher relative wages. Differences are partly attributable to the fact that workers are blocked from performing certain tasks or do not get better-paid tasks and also require more time to build their reputation. Another source of controversy is that work is algorithmically controlled and managed, limiting the opportunities of workers to communicate with clients or challenge rejections or blocks (Rani and Furrer, 2021).

Distribution of hourly pay among Indian and American workers on Amazon Mechanical Turk (AMT)($)



Note: The chart compares remuneration for paid and paid and unpaid work in India and US. The total for paid and unpaid work is lower than paid work as it adjusts for the significant amount time spent preparing for remunerated tasks. Data trimmed at 1 and 99% by platform. Vertical dashed lines indicate mean. Source: Rani and Furrer (2021).

⚠ WHAT ARE SOME OF THE RISKS, UNCERTAINTIES AND TOPICS OF DEBATE RELATED TO THIS TREND? (CONTINUED)

There is a growing movement to reconfigure the terms of platforms to improve conditions for workers. This pressure is taking a number of forms – each with different implications for the future evolution of labour platforms (OECD, 2020):

Market-based strategies such as consumer watchdogs, certification schemes and the establishment of cooperatively managed platforms. Market-based strategies such as consumer watchdogs, certification schemes and the establishment of cooperatively managed platforms. For example, Stocksy, the stock photo and video platform, is a multi-stakeholder, member-owned platform in which the staff and a governing board hold shares along with control rights. Artists receive 50% to 75% of every licence sold, compared to the 15% to 45% industry standard (Schor and Eddy, 2022). Another example is the Fairwork project that scores platforms against 10 criteria around fair work practices that can be used to directly compare platforms against one another. There is also interest in kite-marking and awards for platforms and employers more generally that deliver good employment standards.

Labour rights strategies that make it easier for digital workers to coordinate, share complaints and work opportunities, though this is hindered by the lack of physical co-presence and transparency of digital platforms.

Regulatory strategies that extend traditional social protections to platform-based work. Uber recently lost a landmark battle in the UK's Supreme Court that ruled drivers were workers entitled to rights such as the minimum wage. However success is highly dependent on political will and bargaining power that in recent decades has favoured employers.

More widely, there is growing attention to job quality for creative freelancers. Carey et al. (2023) highlight a number of fruitful avenues by which policymakers could put freelancers on a firmer footing: deploying a 'freelancer test' when introducing new, or reviewing existing legislation or policy measures affecting the creative industries to reflect freelancer priorities; strengthening the voice of freelancers in industry bodies and advisory boards; expanding flexible professional development funds and the portability of benefits across the sector; subsidising workspaces equipped with shared facilities and technologies; and stipulating a certain level of working conditions or commitment to providing high-quality training or mentorship as a condition for organisations receiving financial support through grants or procurement contracts.

4 Data as labour

Trends shaping the future of the Creative Industries

Paying users for data has emerged as a battleground in efforts to counter inequality

WHAT IS THIS TREND?

As treatment of workers on online platforms receives greater scrutiny, so attention is turning to the wider role that users play in the digital and creative economy. Commentators underline the economic and social problems with the culture of 'free' in which users are not paid for their data contributions to digital services. This has led some to claims that we are living in a state of data slavery and consequent calls that users should be paid for using online services and handing over intimate information to technology firms (Economist, 2018).

These ideas are not without precedent. At various junctures in the evolution of the web, there have been attempts to pay the providers of data and build the supporting infrastructure. In its early days, AOL charged users a fee for access to the content behind a basic walled garden that was used to compensate content creators; in France, the pre-Internet Minitel system operated a system of micropayments; while Paypal had a similar focus before abandoning efforts to focus on larger transactions on cost grounds. They represent a fundamental alternative to policy ideas such as Universal Basic Income (UBI) that accept the productive structure of the economy as given, merely tinkering around the edges through ex post redistribution.

WHY DOES THIS TREND MATTER?

In an era of concerns about economic inequality and slow productivity growth, there is a better understanding of the value of data. Data has been shown to improve the performance of algorithms, sharpen targeted advertising and serve as source of content in its own right. Vincent et al. (2019) find that for many search types, user-generated content in the shape of Wikipedia articles feature in over 80% of Google's first results pages and influential 'top three links' over 50% of the time. Critics argue that the free data model has wider economic shortcomings. For example, a user may upload photo on social media for friends and family. However, since that photo is uploaded for fun and it is often taken for granted that others will understand its context or meaning, it may lack the detail to be useful for labelling purposes. Arrieta-Ibarra et al. (2019) observe that the model has done little to free up productivity-related data in contrast to consumption-oriented data. Efforts to generate such data through workarounds like reCAPTCHA systems or the growth of an invisible ghost workforce have not necessarily rewarded users with the greatest expertise, reducing the quality of data available for businesses with potential costs to productivity growth (Gray and Suri, 2019).

Source: New York Times (2020).

? WHY DOES THIS TREND MATTER? (CONTINUED)

These ideas are increasingly moving from theory to practice:

Advances in machine learning are making it easier to estimate the marginal effect of new data on predictions, providing an objective basis for payments (Koh and Liang, 2017). For instance, the field of active learning considers how to prioritise the search for data in order to have the highest impact on training an algorithm. This is reinforced by other technical improvements: Tim Berners-Lee's Solid server keeps personal data on 'pods' separate from any particular application, allowing users to control their own data and grant access to third-party apps at their discretion. NHS, BBC, NatWest and the government of Flanders are all piloting the technology. Meanwhile, startups are helping users to get a larger piece of the pie. Datacy, Killi and Brave all provide means for users to sell their data through online auctions, depositing money into their accounts or providing tokens such as BATs that can be used to tip favourite content creators or redeemed for real-world rewards.

Regulators are adopting a more proactive approach to dealing with these questions. The Australian Competition and Consumer Commission (ACCC)'s Mandatory Bargaining Code provides a novel solution to how platforms should pay for news and local journalism. It combines the economies of scale of collective bargaining with the revelation properties of 'final offer' ('baseball-style') arbitration. Under this approach, if voluntary negotiations do not progress within a certain timeframe, each side must make a single blind offer, and the arbitrator can only choose one of them. This incentivises each party to make an offer relatively close to that which they consider a likely outcome of the voluntary agreement for fear that if their offer is too one-sided or opportunistic, the panel will simply choose the other party's offer (Crawford and Caffarra, 2020; Sims, 2022).

Users are taking more direct forms of action to level the playing field with technology companies. This is being done in a number of ways: data strikes (withholding or deleting data), data poisoning (contributing meaningless or harmful data e.g. AdNauseam browser extension) and explicit data contribution (giving meaningful data to the competitor of a platform users oppose). In an experiment using a movie recommendation algorithm, Vincent et al. (2019) find that if 30% of users went on strike, it could cut the system's accuracy and the benefits of personalisation by 50%. From a creative industries perspective industry, researchers have developed a tool called Glaze that makes pixel-level changes to images undetectable to the human eye that prevents AI models from learning a particular artist's style. Needless to say, organising collective action is a challenge, though some strategies require less coordination than others (e.g. data poisoning > data strikes > data contribution). It is no coincidence that licensing deals signed by technology companies have been with large legacy publishers in possession of significant negotiating power (e.g. Google and News Corp). Discussions over paying publishers for content to train generative AI models are following a similar pattern. This suggests that for individual data labourers, coordination may require more formal arrangements with some commentators recommending the formation of data unions (Posner and Weyl, 2018).

Leading characteristics of the 'data as capital' versus 'data as labour' perspectives

Issue	Data as Capital	Data as Labour
Ownership	Corporate	Individual
Incentives	Entrepreneurship	'Ordinary' Contributions
Future of work	Universal Basic Income	Data work
Source of self-esteem	Beyond work	Digital dignity
Social contract	Free services for free data	Countervailing power to create data labour market

Source: Arrieta-Ibarra et al. (2019).

? WHAT ARE SOME OF THE RISKS, UNCERTAINTIES AND TOPICS OF DEBATE RELATED TO THIS TREND?

In isolation, paying users for data may not be enough. Some commentators doubt the size of compensation that users would receive for their data, though others are more optimistic (Posner and Weyl, 2018). Moreover, not all data is likely to be equal in value with some data more valuable because it is higher quality or underrepresented in the training set. This raises interesting distributional questions about whether data labour would ameliorate or reinforce existing hierarchies. It is not difficult to envisage scenarios where it might reinforce inequality – for example, where marketers are willing to pay more for access to high-income users' data and less for low-income users, including students, the elderly and individuals in low-income nations. This has led some to propose taxing data companies on their 'data dependency' rather than distributing cash to individuals with the proceeds spent on projects that benefit the general public (Berggruen Institute, 2021).

Political uncertainty

Trends shaping the future of the Creative Industries

1 Impact of uncertainty on economic and creative activity

Trends shaping the future of the Creative Industries

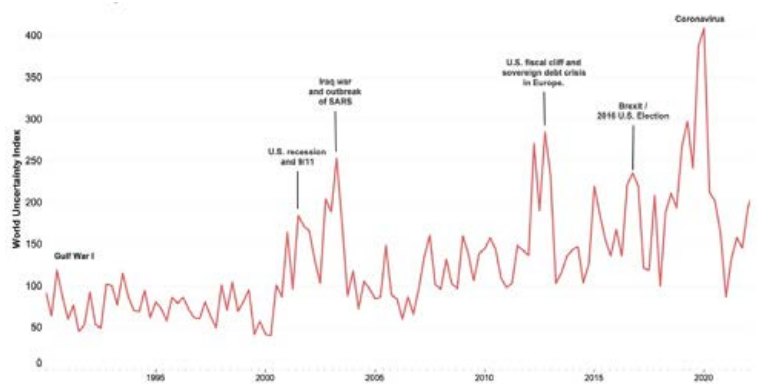
Global uncertainty has surged in recent years

WHAT IS THIS TREND?

The global financial crisis, inequality, political polarisation, massive public and private debts, trade conflicts, climate change and the pandemic have seen global uncertainty reach new heights. Recent levels of global uncertainty are exceptional in a historical context, exceeding events like the assassination of US President John F. Kennedy, the Vietnam War, the gold crisis in the late 1960s and the oil crises in the 1970s. Uncertainty spikes have also become more synchronised, especially within advanced economies due to tighter trade and financial links. Even before the arrival of the pandemic, the Managing Director of the IMF, Kristalina Georgieva, was clear about the direction of travel: "If I had to identify a theme at the outset of the new decade it would be increasing uncertainty".

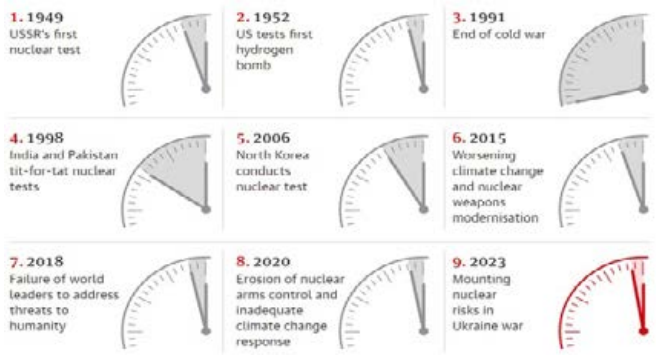
Rising geopolitical tensions are a fundamental source of uncertainty. Indices of geopolitical uncertainty spiked after 9/11 and have remained elevated ever since, even after excluding terms related to terrorism and Middle East. Part of this phenomenon lies in the re-emergence of multipolarity and the limits of US influence over a rapidly shifting world order (Tucker, 2022). A proxy for this was the UN vote to condemn Russia's annexation of Ukrainian territories that saw the world's population split in half. Specifically, it highlighted a growing global divide between Western nations and parts of the Global South where there is growing frustration over the marginalisation of issues such as food insecurity, debt relief and compensation for the damage caused by climate change as well as the West's dominance of international institutions and inconsistent approach to solving conflicts in other parts of the world. As power is distributed in more hands, so the gap between measurable power and the power necessary to maintain international order is likely to widen. This will open the door for a broader range of actors to advance their interests and even test the boundaries of what is acceptable.

World Uncertainty Index Normalized, 1990-2022 (GDP weighted average)



The WUI is computed by counting the percent of word "uncertain" (or its variant) in the Economist Intelligence Unit country reports. The WUI is then rescaled by multiplying by 1,000,000. A higher number means higher uncertainty and vice versa. For example, an index of 200 corresponds to the word uncertainty accounting for 0.02 percent of all words, which – given the EIU reports are on average about 10,000 words long – means about 2 words per report. Source: Ahir et al. (2022).

Symbolic countdown calculated annually in response to events the previous year



The Doomsday Clock uses the imagery of apocalypse (midnight) and the contemporary idiom of nuclear explosion (countdown to zero) to convey threats to humanity and the planet. The hands of the clock are set each year by the Bulletin's science and security board with the support of the its board of sponsors that includes 10 Nobel laureates. The minute hand on the Doomsday Clock has been reset 25 times since its debut in 1947 Source: Bulletin of the Atomic Scientists (2023).

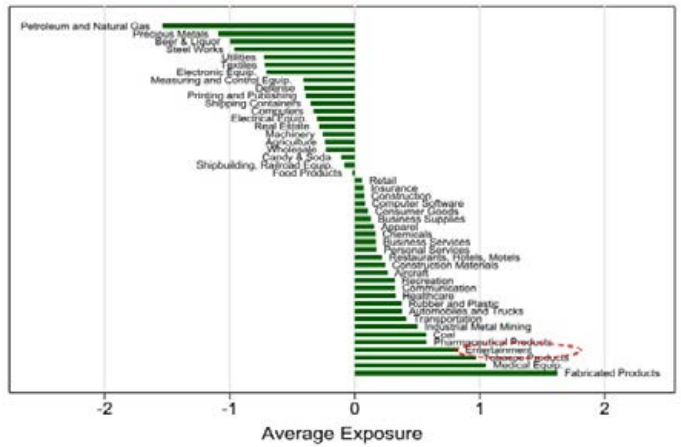
...resulting in higher costs for creative businesses

WHY DOES THIS TREND MATTER?

Uncertainty can weigh heavily on economic activity in addition to its impact on political and social cohesion. A large body of evidence finds that uncertainty foreshadows significant declines in economic output and is accompanied by a heightened sensitivity to downside risks and caution about the future (Bloom, 2014; Baker et al., 2016; Ahir et al., 2020). More specifically, higher uncertainty may hinder both investment and hiring as firms become reluctant to make decisions that are costly to reverse while households may become cautious about spending on big-ticket items. In each case, there is value to waiting for additional information to emerge about future prospects. This poses a particular challenge in the UK where productivity problems -both in terms of level and growth rates- are largely attributable to underinvestment rather than the sectoral composition of the economy or the underperformance of a 'long tail' of firms (Oliveira-Cunha et al., 2021). Uncertainty may also raise the cost of finance as investors want to be compensated for higher risk. Finally, uncertainty may slow down the reallocation of jobs, workers and capital to their most productive uses as actors are less responsive to opportunities and changes in the business environment.

The costs of uncertainty are particularly large for R&D and creative projects. These effects are consistent with creative projects having longer investment time horizons, relying on difficult-to-value intangible assets and being more exposed to extreme tail outcomes (Bhattacharya et al., 2017). Du et al. (2023) estimate that between 2016 and 2019, the uncertainty caused by the Brexit referendum depressed UK creative service exports to the EU by 15%, compared to the scenario in which the referendum did not take place. In a similar vein, Astvansh et al. (2022) document a negative relationship between geopolitical risk (GPR) and firm-level technological innovation output. Specifically, they find a 1% increase in GPR reduces the number of patents a company files the following year by 0.18%, reduces the financial value of the patents granted to the company by 0.24%, and reduces the scientific value of the granted patents by 0.08%. They also find that as geopolitical risk increases, patents tend to focus on less radical or breakthrough innovations. These effects persist for a significant time – on average, three to five years, reaching their peak a full two years after the initial rise in geopolitical risk. It appears that the creative industries pay a particularly heavy toll for geopolitical uncertainty. Caldara and Iacoviello (2019) use daily stock returns to calculate industry exposure to adverse geopolitical risks. They find that industries such as entertainment are highly exposed to these risks with daily stock returns falling more sharply after an increase in geopolitical risk than the rest of the market.

Exposure to geopolitical risk by industry using daily stock returns



Industry exposure to adverse geopolitical risk: average values from 1995 through 2018, standardised to have zero mean and unit standard deviation. Higher values indicate a larger decline in industry daily stock returns after an increase in geopolitical risk. Source: Caldara and Iaoviello (2019).

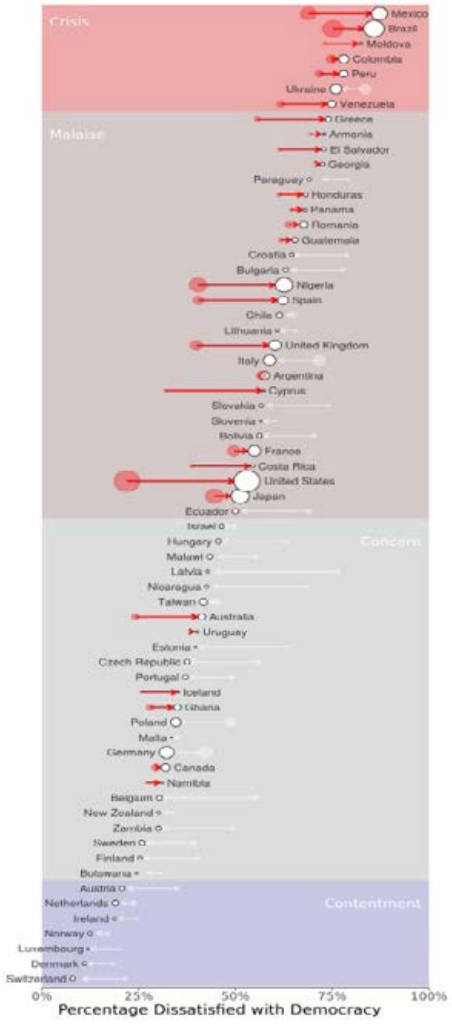
Uncertainty has a number of layers that need to be unpacked

⚠ WHAT ARE SOME OF THE RISKS, UNCERTAINTIES AND TOPICS OF DEBATE RELATED TO THIS TREND?

There is a consensus that elevated uncertainty is here to stay, but its trajectory is not set in stone. In the US National Intelligence Council's assessment of the key trends that will shape the strategic environment over the next two decades, nearly all scenarios point to a more uncertain future. However, there are important differences. Juxtaposed against ominous names like 'Tragedy and Mobilisation', 'A World Adrift' and 'Separate Silos' are scenarios like 'Renaissance of Democracies' and 'Competitive Coexistence'. Both scenarios are clear-eyed about the challenges that lie ahead, recognising that countries will cooperate more with those they have most in common. Nonetheless, they envisage ways to better manage differences between political and economic systems, navigating a path between amoral realism and universal moralism and adding a meaningful degree of predictability to relations (Tucker, 2022). This matters as there are compelling incentives for countries to cooperate given economic interdependencies and common challenges such as climate change, the risk of future pandemics and the regulation of AI.

Levels of uncertainty vary significantly across countries (Ahir et al., 2020). Specifically, developing countries experience higher levels of uncertainty than emerging market and advanced economies reflecting the higher frequency of domestic political shocks and natural disasters and the reduced ability to manage these shocks. There is also a subtle relationship between uncertainty and democracy: as countries transition from a regime of autocracy and anocracy toward democracy, uncertainty increases. However, with the deepening of democratic institutions and norms, uncertainty begins to fade. One potential reason for this is that anocracies are often less powerful and ruthless than autocracies in quelling dissent and maintaining order. At the same time, they are less able to provide the release valves to manage disagreements and reach compromises found in established democracies. Walter (2022) observes that anocracies, especially those with more democratic than autocratic features are twice as likely as autocracies to experience political instability or civil war and three times as likely as democracies.

Change in percentage who are dissatisfied with democracy, from mid-1990s (average of surveys) to latest observation in 2019 (average of the three most recent surveys).



Source: Foa et al. (2020).

⚠ WHAT ARE SOME OF THE RISKS, UNCERTAINTIES AND TOPICS OF DEBATE RELATED TO THIS TREND? (CONTINUED)

An open question is how far democratic governance is in retreat in more established democracies. Moisés Naím (2022) argues that more and more leaders, self-proclaimed 'illiberal democrats', are gaining and strengthening power by exploiting democracy's soft guardrails, termed the 3Ps: populism, polarisation and post-truth. This phenomenon can be seen in many parts of the world, including the world's largest democracy India. The University of Cambridge's Centre for the Future of Democracy that has tracked views on democracy since 1995 finds that global dissatisfaction with democracy as it currently operates is at a record high, notwithstanding a few bright spots (e.g. Scandinavia, post-communist Europe and Southeast Asia). Data from V-Dem, a Swedish monitoring institute, finds that more democracies were deteriorating, and even slipping into autocracy, in 2021 than at any point in the past 50 years. (Foa et al., 2020). Strikingly, the US ranks today as an anocracy for the first time in more than two centuries.

Polarisation has become a powerful force in politics and source of uncertainty (Baker et al., 2014; Baker et al., 2020). Competing, entrenched perspectives can leave less room for compromise and create political incentives for brinkmanship, thereby driving uncertainty. In the US, affective polarisation – dislike, distrust and animosity among political parties – has nearly doubled since the mid-1990s reflecting rising inequality, changes in electoral districting, campaign finance, geographic cohesion, party competition, democratisation within parties, racial divisions, an ageing population and the political impact of financial crises (Iyengar et al., 2019; Doerr et al., 2021). It has also increased in other OECD countries, albeit in a more modest fashion and has even fallen in some countries (Boxell et al., 2020; Reiljan, 2020; Wagner, 2021). In parts of the Global South, polarisation remains shaped by the legacy of colonial rule and the failure to carve out effective states with due attention to history, ethnic composition and economic potential and the need for carefully delineated boundaries that would ensure a fair division of resources (Ali et al., 2019).

Information environment, polarisation and uncertainty

⚠ WHAT ARE SOME OF THE RISKS, UNCERTAINTIES AND TOPICS OF DEBATE RELATED TO THIS TREND? (CONTINUED)

Changes in the media environment merit close attention against a backdrop of partisanship and polarisation. Algorithmic curation and social media are increasingly challenging traditional forms of expertise in terms of distributing news and shaping opinion. Some argue that the incentives of platforms to maximise engagement can create echo chambers of like-minded users who share information that confirms their existing priors and limits their understanding of alternative perspectives (Claussen et al., 2021; Levy, 2021). This appears particularly true for conservative-leaning users, though both sides of the political spectrum are vulnerable to the consumption of low-quality information and basic cognitive biases (O'Connor and Owen, 2018; Menczer and Hills, 2020; Garrett and Bond, 2021). These effects are reinforced by the structure of the social media networks: highly centralised networks dominated by a few prominent voices are more likely to undermine the potential of collective intelligence that arises from individuals independently weighing up information and uncovering new solutions found in more equitable networks (Becker et al., 2017). Another feature of social media platforms is the tendency for false news to travel much faster and further than the truth on social media. Vosoughi et al. (2018) report that false stories are 70% more likely to be retweeted than true ones while it takes true stories about six times as long to reach 1,500 people as it does for false stories. One reason for the dissemination of false news is the human bias for novelty: people are more likely to share news that surprises them – and false stories tend to be surprising and novel relative to the truth (Itti and Baldi, 2009). These vulnerabilities can be exploited by bots that work by repeatedly mentioning influential individuals in the hope they will share false news – in the process legitimising and amplifying it (Shao et al., 2018). There is also some evidence that humans are more likely to believe disinformation generated by AI which is concerning given how cheaply and quickly it can be produced (Spitale et al., 2023).

Left: In a 2010 experiment on the fallibility of memory, participants who were more politically sophisticated than the general population accepted as truth a photoshopped an image of US President Barack Obama shaking hands with Iranian President Mahmoud Ahmadinejad known for his hardline views and efforts to nuclearise Iran. The meeting never took place. However, among those surveyed, 21% said they remembered seeing the photo before, and an additional 25% claimed to remember the event, but not the specific photo.

Right: Picture of Rohingya refugees arriving in Dakhinpara, Bangladesh, in September 2017, after fleeing the military crackdown in Rakhine state (FT, 2018). Social media was used by Myanmar authorities to incite violence against the Rohingya Muslim minority that resulted in the death of 24,000 Rohingyas and displacement of 700,000 of its nearly one million population. Even today, the conditions of the Royingha in neighbouring countries remain dire (Guardian, 2023). The reliance on social media for news is higher in developing countries than in developed countries, particularly for media like WhatsApp that enable allow to identify recipients through their photo and make it easy to send short recorded messages, overcoming literacy barriers. The control and manipulation of information has increasingly supplanted other coercive methods (Guriev and Treisman, 2022).

⚠ WHAT ARE SOME OF THE RISKS, UNCERTAINTIES AND TOPICS OF DEBATE RELATED TO THIS TREND? (CONTINUED)

There are a number of paths along which these trends may evolve and it is possible to sketch out more optimistic scenarios. In many settings, individuals continue to operate in a high-choice environment, exposing them to information outside social media (Du Bois and Blank, 2018; Boczkowski et al., 2018). In particular, public broadcasters possess significant ability to combat fake news, though they must also find ways to appeal to younger audiences who are increasingly tuning out of their services. It is an open question whether these are lifelong habits or are likely to shift as this group advances through different life stages. While concerns have been expressed about social media's role as a source of fake news, the scale and significance of this phenomenon –specifically its impact on polarisation– remains contested (Boxell et al., 2017; Aral et al., 2020; Nyhan et al., 2023).

More promisingly, steps can be taken to enrich individuals' media diet. Research shows that social media algorithms can be calibrated in ways that restore diversity to the content that individuals consume, though evidence on whether this feeds through to changes in beliefs and attitudes is more mixed: some studies have found a positive effect while others have found no effect, making generalisations difficult (Chen and Yang, 2019; Holtz et al., 2020; Levy, 2021; Guess et al., 2023). Organisations have also emerged in recent years promoting guidelines to identify 'trusted' or 'public interest' journalism that can be used by online intermediaries to counter the spread of disinformation. Organisations have also emerged in recent years promoting guidelines to identify 'trusted' or 'public interest' journalism that can be used by online intermediaries to counter the spread of disinformation. The governance mechanisms of alternative platforms like Wikipedia also hold lessons for combatting misinformation (Benjakob, 2019). Other proposals include the introduction of vouchers, funded by public money, whereby every citizen would be given a voucher worth a fixed sum of money to allocate to their favoured news outlet (Stigler Center, 2019). For instance, eligibility could be made conditional on meeting certain minimum standards of factual accuracy while making no demands for political impartiality. From a legal and regulatory perspective, policymakers are showing a greater willingness to explore the liability of platforms for user content and related issues such as protection of victims against deepfakes in the face of 'cheap speech' (Schmon and Pedersen, 2022; Hasen, 2022). Defamation laws can be very costly for purveyors of fake news, as Fox News discovered in its settlement with Dominion Voting Systems, though they are also extremely difficult to win in many jurisdictions.

Still, there is no guarantee that this benign state of affairs will continue: financial pressures on public broadcasters and newspapers given disruptions in the advertising market and trade-offs with alternative business models (Ewens et al., 2023); inequalities in data and digital literacy that make it harder for individuals to reflect on the accuracy of what they have read or seen; ever more sophisticated forms of technological manipulation; the continued blurring of fact and comment and challenges over how to report different sides of a story or argument when one side is weak or even demonstrably false ('both-sideism') pose risks to the diversity of the average citizen's media diet.

Risk score for EU member states and candidate countries on aspects of media pluralism, 2017-2021

Note: Aggregate risk rating for dimensions of pluralism in media systems. Fundamental protection considers the existence of effective regulatory safeguards to protect the freedom of expression and the right to seek, receive and impart information; favourable conditions for the free and independent conduct of journalistic work; independent and effective media authorities; and the universal reach of both traditional media and internet. Market plurality assesses the economic dimension of media pluralism and the risks that are related to the context in which market players operate, including transparency, concentration, financial sustainability and influence of commercial interests on editorial content. Source: Centre for Media Pluralism and Media Freedom (2022).

2 Industrial policy and reimagining government?

Trends shaping the future of the Creative Industries

The state strikes backs?

WHAT IS THIS TREND?

Industrial policy has been made a comeback in the wake of the pandemic. The severity of the Covid-19 saw many countries intervene in economies and daily lives in unthinkable ways. Historically pandemics have been associated with a step-change in the growth of modern states and machinery of government due to the need to coordinate and enforce public health measures that catalysed broader institutional change (Harrison, 2004).

These trends have not emerged out of the blue. Frustration with the working and effectiveness of markets in promoting growth and welfare has been on the rise (DeLong, 2022). In developing countries, policies influenced by the Washington Consensus – a package of free market reforms endorsed by multilateral institutions – largely failed to produce their desired effects. The financial crisis of 2008 and subsequent economic malaise of advanced economies also led to a reassessment of activist government. Technological change and the opportunities it presents for industrial upgrading have been a further tailwind for industrial policy. There is particular interest in the ability of public agencies to take on risks that the private sector may be unwilling to assume against the backdrop of balance sheet problems and weak demand expectations (Mazzucato, 2021; Koo, 2022).

WHY DOES THIS TREND MATTER?

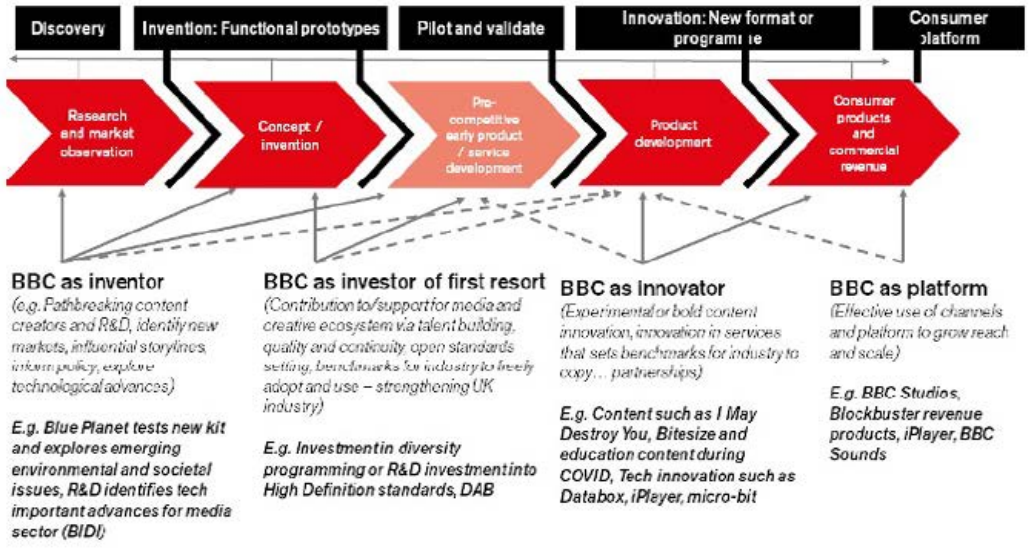
Contemporary industrial policy represents a distinctive approach to policymaking and answer to the challenge of igniting growth. The disappointing experience with industrial policy in many parts of the world regarding the overreach of the state with weak capabilities and the risks of picking winners leading to rent-seeking is a reminder that contemporary practice needs to be put on a different institutional basis and set of principles to avoid a repeat of past mistakes (Aiginger and Rodrik, 2020). Today there is a recognition that the state does not have a panoramic view of the economy. Eschewing top-down policymaking, this approach puts a premium on public-private dialogue with the aim of identifying where the most significant opportunities and bottlenecks to growth lie as well as the most appropriate interventions for addressing them. Eschewing top-down policymaking, this approach puts a premium on public-private and community dialogue with the aim of identifying where the most significant opportunities and bottlenecks to growth lie and ensuring interventions are contextualised to local needs (Rajan, 2019). It treats policies as contingent from the outset, prone to false starts, to be continuously monitored and adjusted in light of outcomes. Equally, this perspective does not idealise local problem-solving. Rather, it acknowledges that bottom-up experimentation works best when it is nested and overseen by a more comprehensive body that can spot and scale successful innovations and pull the plug on failures based on related experience elsewhere.

Another difference is that today's industrial policy is much more respectful of comparative advantage, both actual and potential. There is a preference for horizontal measures that do not favour specific sectors, but rather stimulate certain activities -for example, the subsidisation of management and business training for creatives that potentially affects the entire creative economy. But there is also an understanding of the power of more specific, vertical interventions to alleviate bottlenecks where they work with the grain of comparative advantage. Finally, this approach recognises the complementarities between industrial policy and other policy domains like competition, trade, skills, regional or tax policy that are often viewed in isolation. In particular, it highlights the strategic use of demand-side measures such as public procurement -alongside traditional supply-side measures- in creating lead markets where there is a lack of clearly articulated demand for new goods and services and resolving coordination problems that arise from risk aversion among firms and potential buyers.

WHY DOES THIS TREND MATTER? (CONTINUED)

Part of this vision involves organisations moving towards a more mission-oriented approach. The classic justification for industrial policy is that it corrects market failures – for instance, the difficulties faced by firms in appropriating the returns from investments in R&D that enjoy the properties of a public good, meaning that they will invest in R&D less than would be socially optimal. Evidence for these knowledge spillovers can be found in parts of the creative industries (Goodridge et al., 2017). Newer perspectives argue that organisations should focus as much on creating and shaping markets as on correcting market failures. Mazzucato et al. (2020) consider the BBC, highlighting its ability to act entrepreneurially both through the upstream R&D end of the innovation chain and the downstream consumer end as a mainstream consumer platform. They argue that this role is more difficult under a market failure regime that stipulates a narrow set of conditions under which public money can be spent. To implement this vision, mission-oriented organisations must think about a number of framework conditions: the desired direction of travel; organisational capabilities and governance structures to foster innovation and a better sharing of rewards, including through equity stakes. It also requires a different kind of analytical framework for policy appraisal and evaluation based on dynamic rather than static efficiency. In the case of the BBC, it should take account of the individual, social and industry value created and ecosystem effects in terms of content, technology and audience. Finally, a mission-oriented approach recommends that the public plays a more active role in monitoring and evaluation, with growing interest in mechanisms such as citizens' juries, consensus conferences, deliberative polls, participatory budgeting and quadratic voting (Mills, 2016; Posner and Weyl, 2018; Breckon et al., 2019).

The BBC reimagined as a market shaper



Source: Mazzucato et al. (2020).

But constraints on policymaking cannot be ignored

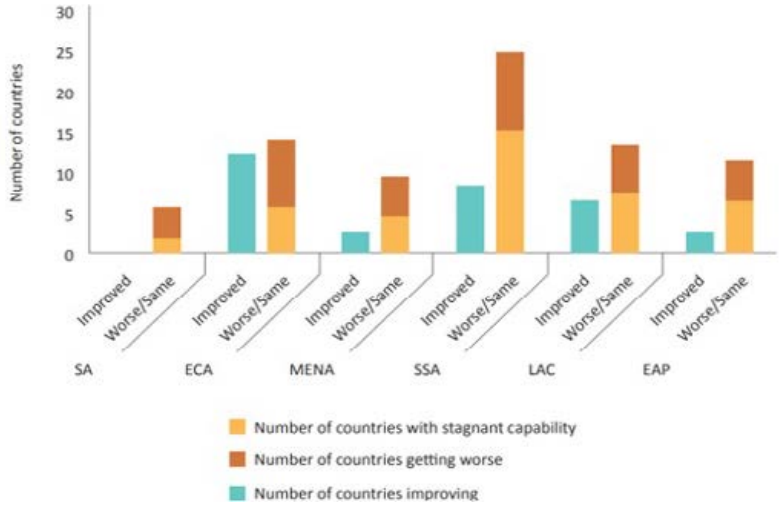
⚠ WHAT ARE SOME OF THE RISKS, UNCERTAINTIES AND TOPICS OF DEBATE RELATED TO THIS TREND?

Industrial policy as a process of discovery requires policymakers to unlearn old habits. As valuable information is dispersed across society, successful industrial policy necessitates much higher levels of local experimentation and communication between governments, private sector and other stakeholders. In many countries, however, the powers of local leaders are constrained and they lack the ability to experiment, try new ideas or develop new ideas to problems (OECD, 2018). International trade rules can also constrain experimentation (Rodrik, 2017). Changes in governance furthermore come with risks: bottom-up organisation and close engagement with the private sector under real-world conditions where some actors are more powerful than others can open the door to corruption and rent-seeking. This risk is higher for emerging economies that have seen government effectiveness stagnate or decline over the past 15 years.

The emphasis on discovery also means accepting a failure rate consistent with the underlying riskiness of the activity being supported – a trade-off that civil servants and elected officials may find difficult to tolerate but one that cannot be resolved by simply overriding bureaucracy (Kattel et al., 2022). In turn, the reliance on debt finance in many settings is not always well-suited to industrial policy with its emphasis on experimentation and the development of intangible-intensive firms. This reflects the difficulties of using intangible capital as collateral and the fact that debt does a worse job than equity of sharing risk between borrowers and lenders as repayment terms are fixed and do not adjust automatically with servicing capacity. The asymmetric tax treatment of debt and equity has often reinforced this bias (Haskel and Westlake, 2022).

Finally, highly institutionalised arrangements can sit uncomfortably with the swath of SMEs and micro-businesses that make up the creative industries. SME associations have a mixed record of representing heir members in an adequate way while the smallest businesses often have a very limited understanding of the 'bigger picture' of innovation system issues. In some cases, it may be more practical to identify private sector voices that are familiar with the issues facing underrepresented groups than worry whether these voices have the formal authority to represent them (Hetherington, 2016).

In emerging economies, more governments' capability to implement policy declined or stagnated than improved between 2006 and 2020



Notes: SA=South Asia; ECA=Europe and Central Asia; MENA=Middle East & North Africa; SSA=Sub-Saharan Africa; LAC=Latin America and Caribbean; EAP=East Asia Pacific. Source: Bertelsmann Transformation Index 2020, World Bank (2022).

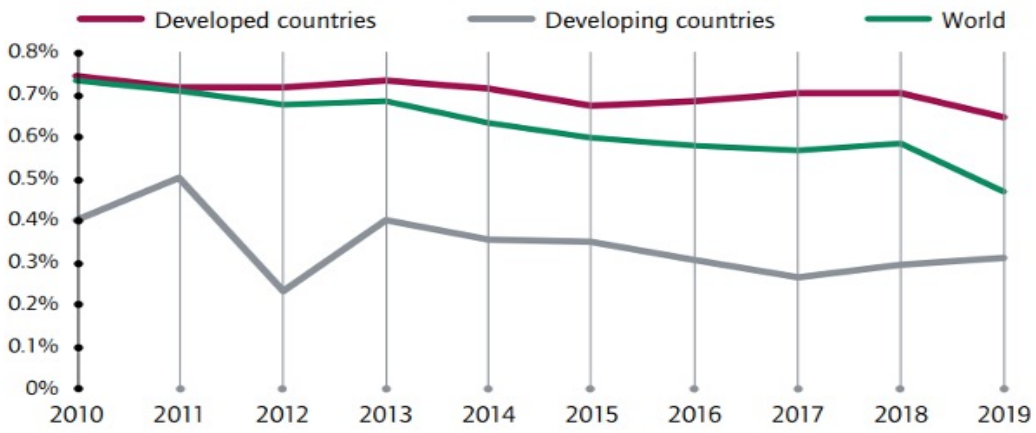
⚠ WHAT ARE SOME OF THE RISKS, UNCERTAINTIES AND TOPICS OF DEBATE RELATED TO THIS TREND? (CONTINUED)

Adapting the traditional tools of industrial policy to the creative industries is not straightforward. Definitions of R&D used for tax relief are geared toward STEM-based research activities and do not always map neatly onto knowledge creation in the arts, humanities and social sciences – for instance, the fact that R&D spending in the latter is concentrated on worker and freelancer time rather than technology or equipment (Siepel et al., 2022). Some countries such as Chile, France, Italy, Mexico, Norway, Russia and South Korea have revised eligibility criteria for their R&D Tax Credit programmes to accommodate these activities. But other countries, including the UK take a much more restrictive approach. Bakhshi (2022) observes that the film, TV and radio subsector accounted for 2.2% of all R&D expenditure in the UK in 2018; however, it accounted for only 0.3% of qualifying R&D expenditure.

There is also a lack of systematic monitoring and evaluation of policy: globally, just under half of statistical agencies or research bodies have evaluated creative and cultural policies over the past four years with figures ranging from 75% in Western Europe and North America to 30% in sub-Saharan Africa and 35% in Latin America and the Caribbean (BOP, 2021). A side-effect of the failure to install rigorous and comprehensive evaluation is that policy discussions become heavily tilted towards nearer, more measurable costs at the expense of potential gains, leaving policy programmes vulnerable to chronic underinvestment and sudden reversals, driven by the political cycle and other short-term pressures.

The buildup in public debt in the wake of the pandemic may limit the scope for activism. In many countries, the unprecedented scale of government support during the pandemic exceeded anyone's imagination. If politics is the art of the possible, then the pandemic may have led to a reassessment of what is possible and the demand for more ambitious, radical and solidaristic policies. What is done cannot be undone and what has been done once before and can be done again in the future. At the same time, however, the pandemic may have altered the trade-offs between benefits and costs of accumulating government debt that was a by-product of such support. For example, stabilising historically high levels of debt while meeting new economic and social challenges will likely involve choices to be made between tax increases and spending cuts, especially against the backdrop of current fiscal rules and mindful that government expenditure for the cultural and creative sectors has largely declined over the past decade, with the exception of a slight increase in developing countries between 2017 and 2019 (UNESCO, 2022).

Mean government expenditure on 'cultural services' and 'broadcasting and publishing services' as a percentage of GDP, 2010-2019



*Only countries having submitted data for at least 5 years in the period between 2000 and 2019 have been considered.
Source: International Monetary Fund (2020)/BOP Consulting (2021).

Source: UNESCO (2022).

3 Concentration, competition and the spectre of regulation

Trends shaping the future of the Creative Industries

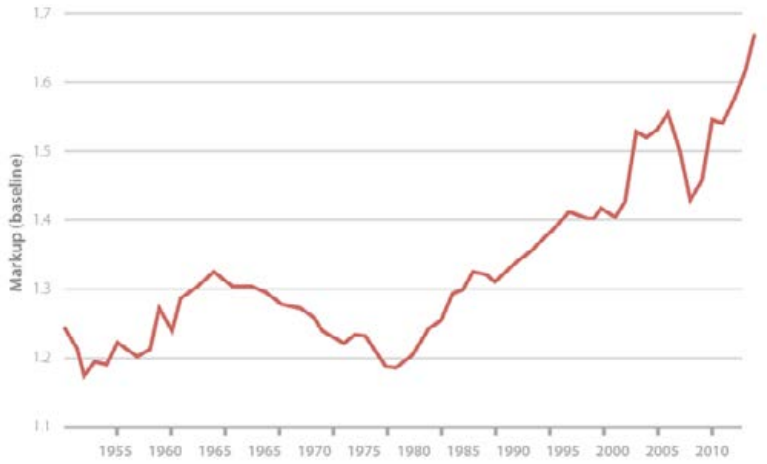
Competition and antitrust in a new age

WHAT IS THIS TREND?

There is growing concern over the political and economic power of large corporations. Virtually every sector has witnessed an increase in concentration, markups, profitability and market power in all sectors. Importantly, the increase in markups and related measures has been driven exclusively by a few firms at the top of the distribution, without any increase for most firms (Eeckhout, 2021). Patterns have been broadly similar across most continents around the world, though the magnitude of this rise appears to have been larger in the US than the EU and more muted in emerging economies in Latin America (Philippon, 2019; De Loecker and Eeckhout, 2021). These trends have been accelerated by the pandemic: the IMF (2021) estimates that concentration has increased in advanced economies by at least as much as it did in the fifteen years to end of 2015.

The big three – EU, US and China – are taking a more robust approach to antitrust enforcement and competition policy. Trends are most advanced in the EU partly reflecting weaker historical belief in the market's capacity for self-correction. Google alone has been subject to $8bn in fines over the past decade. In the US, the antitrust push has found rare bipartisan backing – see proposals to create a new commission to regulate online platforms and bills such as the American Innovation and Choice Online Act (Graham and Warren, 2023). Regulators have hearkened back to an older Rooseveltian tradition that views the battle against the risk of corporate oligopoly as a battle for democracy and freedom. However, the wider legal framework is one that places a high burden on government to prove antitrust violations (Baer, 2020; Aridi and Petrovčič, 2020). China has also targeted 'self-preferencing' (自我优待): in 2021, the regulator – SAMR – fined Alibaba $2.8bn for preventing merchants from selling their goods on rival shopping platforms, at the time the largest fine in the country. Finally, merger control and national security rules have continued to evolve, with growing scepticism from antitrust enforcers around the world toward M&A. In the UK, 64% of deals ended in mortality (prohibition, unwind, and deal abandonment) in the period 2019-2022. This compares with only 30% of deals for the period 2014-2017 (Linklaters, 2023). Microsoft's acquisition of Activision is an illustration of the colder winds now blowing: the deal has faced a stiff challenge to secure regulatory approval, yielding meaningful concessions amid concerns that making games exclusive to Microsoft's cloud service could hamper innovation in the nascent cloud gaming market.

Average industry markups across the world 1950-2015



Note: Markups refer to the price a firm charges over the price of production. If a market is perfectly competitive, and there are no fixed costs, economic theory predicts that the output price is exactly equal to the marginal cost of producing the last unit, namely markups are zero. In this case, markups are calculated on a firm rather than sector basis. Source: De Loecker et al. (2020).

WHAT IS THIS TREND? (CONTINUED)

EU's Digital Markets Act and Digital Services Act constitute the most significant overhaul of the laws governing the operation of Big Tech in decades. In particular, the Digital Markets Act marks a dramatic shift from relying on ex-post, backward-looking competition law to ex ante, forward-looking regulation. Platforms that exceed certain quantitative thresholds – by turnover and number of users – will be designated as gatekeepers. They will be required to ensure data portability, interoperability and sharing to promote contestability. They will also need to notify any intended digital or data-related mergers to regulators regardless of their size. At the same time, gatekeepers will be banned from using the data of business users when they compete with them on their own platform. They will also not be allowed to rank their own products or services in a more favourable manner compared to those of third parties or compel app developers to use gatekeepers' services such as payment systems or identity providers in order to appear in their app stores. Non-compliance will be sanctioned with fines of up to 10% of total worldwide turnover – and 20% in case of repeated non-compliance. This emphasis on regulatory solutions does not mean that the EU not abandoned competition law. For example, authorities are increasingly turning to 'interim measures' (e.g. Broadcom case) that stop companies from engaging in suspected anti-competitive behaviour before the outcome of a case in order to keep up with the fast-changing nature of digital markets and the use of stalling techniques by defendants (OECD, 2022).

EU and US are proceeding with legislation that would affect Big Tech

Bill	Jurisdiction	Key Provisions
American Innovation and Choice Online Act	U.S.	- bans self-preferencing and mandated nondiscrimination of goods and services on websites - applies to companies with market cap greater than $550B and more than 50M monthly users
Prohibiting Anticompetitive Mergers Act	U.S.	- prohibits mergers worth more than $5B or which provide market shares beyond 25% for employers and 33% for sellers
Digital Markets Act (DMA)	E.U.	- antitrust legislation that stipulates how online platforms must compete in E.U. - gives regulators broad investigatory powers (non-compliance can mean fines of up to 10% of annual revenue) - applies to companies with market caps of at least €75B or revenues of €7.5B ('gatekeepers' must also provide services such as browsers, messengers or social media, and have at least 45M monthly users in EU & 10K business users)
Digital Services Act (DSA)	E.U.	- covers privacy and data usage with a focus on enforcing how platforms should respond to illegal content - could lead to gig-economy platforms facing greater scrutiny for criminal offenses occuring on platform - non-compliance can mean fines of up to 6% of annual revenue

Source: Citi (2022).

But old questions remain…

WHY DOES THIS TREND MATTER?

There is a broad consensus that increased market power is bad for the economy. Some point to the stifling effects on innovation: even if healthy competitive forces allow 'superstar firms' to thrive and build market power on the back of their success, the resulting gap between leaders and laggards might discourage potential new entrants that is necessary to keep incumbents on their toes (Philippon, 2019; Grullon et al., 2019; Aghion et al., 2021). This particularly matters since among innovative firms, younger and smaller businesses tend to invest more in R&D and grow more quickly than older and larger ones. This is consistent with the greater willingness of smaller and younger innovative firms to explore new, untested product lines unlike incumbents who may worry about cannibalising or eroding their own profits from existing offerings (Acemoglu et al., 2018). This particularly matters since among innovative firms, younger and smaller businesses tend to invest more in R&D and grow more quickly than older and larger ones. This is consistent with the greater willingness of smaller and younger innovative firms to explore new, untested product lines unlike incumbents who may worry about cannibalising or eroding their own profits from existing offerings (Acemoglu et al., 2018). There is a particular focus on the impact of M&A by dominant firms on business dynamism (IMF, 2021). Market power is also linked to increases in wage inequality and declines in labour income shares as well as markedly less job mobility (Eeckhout, 2021). Some commentators argue that tech platforms, much like the financial system in 2008, have become too big to fail – so intertwined in the lives of individuals that they cannot close or fail without severe social and economic consequences. Developing countries are particularly exposed to these risks where services such as Facebook serve as the primary source of news and a critical pillar of the public sphere (Mirani, 2015; Ohman and Aggarwal, 2020). It is worth noting that this view is not altogether accepted. Some argue that market concentration) can serve as an imperfect indicator of the competitive intensity of a well-defined market. Others offer a more benign interpretation, arguing that some outward signs of growing market power are overstated and have more do with the changing nature of capital towards intangibles (Haskel and Westlake, 2022). It is also important to remember that indicators such as market concentration are conceptually and practically distinct from competitive intensity of industries and economies. The presence of one cannot be simply inferred from the presence of the other.

BritBox, launched in the US in 2017 and UK in 2019, is BBC's and ITV's joint vision for a streaming service. However, it is easy to forget that these efforts date further back. Stokel-Walker (2020) recounts how the attempt by the BBC, Channel 4 and ITV in 2009 to create a joint streaming service – Project Kangaroo – was blocked by the UK Competition Commission. The decision was criticised for measuring market power and share in narrow broadcasting terms and consequently discounting the competition from global platforms and wrongly assuming that BBC, Channel 4 and ITV would refuse to host external content on the new platform when doing so is the very reason for operating such a platform. Some believe that these misconceptions prevented a first-mover advantage and the emergence of a credible, UK – competitor to Netflix at a time when Netflix was still sending DVDs in the post.

WHY DOES THIS TREND MATTER? (CONTINUED)

The status quo appears ill-equipped to deal with issues arising from new business models:

- **A narrow focus on low prices and other short-term effects**. It is argued that this consumer welfare standard ignores dynamic features of market structure and the competitive process that give rise to market power.
- **Failure to account for the heterogeneity of business models**. Platforms monetised via consumer-side 'access fees' (device prices or subscriptions) appear to have very different welfare effects than platforms monetised indirectly via advertising or data collection (Caffarra et al., 2020).
- **Many acquisitions occur under the radar of competition authorities**. Transactions involving small start-ups rarely meet turnover thresholds to trigger merger review. Kamepalli et al. (2020) examine the role of 'killer' acquisitions in which firms acquire nascent competitors only to abandon the target's innovation projects, thereby eliminating future competition. Contrary to the conventional wisdom that the prospect of being acquired for a handsome profit is a powerful incentive for entry and innovation, the authors argue that the opposite occurs where consumers face switching costs and enjoy network externalities. The reasoning is that if consumers expect a new entrant to be acquired, they will be reluctant to pay the switching costs – for instance, learning every minor aspect of the standalone platform, knowing they can wait. In turn, this will dissuade adoption by later users who rely on early sophisticated 'techies' to uncover its quality and kickstart network effects. The combined effect is to reduce the value of the platform and consequently discourage ex ante investment in innovative start-ups. This is supported empirically: relative to the mean in the entire software sector, VC investments in start-ups in the same space as the company acquired by Google and Facebook drop by 40% and the number of deals by 43% in the three years following an acquisition.
- **Difficulties in identifying relevant market**: Is Amazon's market share in US 35% (gross value share of ecommerce) or 5% (gross value share of addressable retail)?.
- **Mismatch between wheels of justice and the pace of technological change**. Remedies imposed after lengthy investigations may be too late to prevent lasting harm to competition in fast-moving markets, leading large businesses may view fines as an acceptable cost of doing business.

Completed acquisitions by Large Tech Firms

The dark blue circle radius is proportional to the deal size, and the small black dots indicate acquisitions with no publicly available price. Deals include completed mergers and acquisitions deals by the specified firm as of the autumn of 2022. Source: Bloomberg; Crunchbase; Mergr; Alphabet; Meta; Amazon; Google; Microsoft; TechCrunch reproduced in the Economic Report of the President (2023).

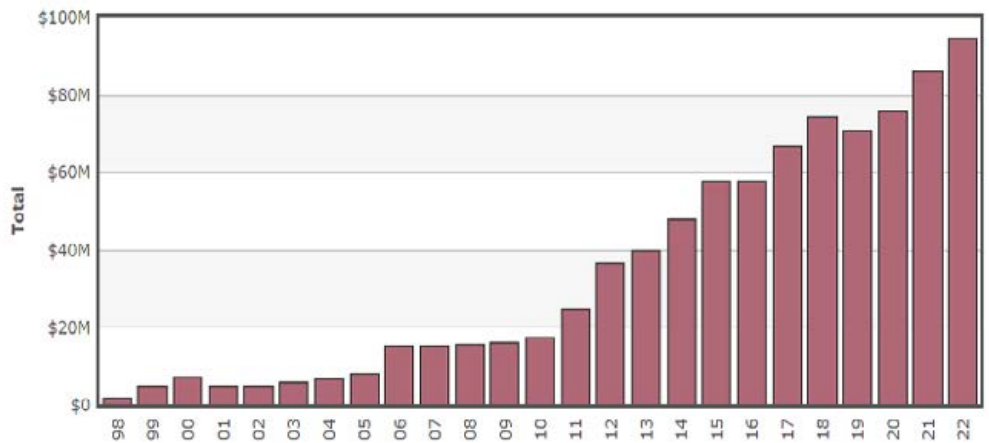
⚠ WHAT ARE SOME OF THE RISKS, UNCERTAINTIES AND TOPICS OF DEBATE RELATED TO THIS TREND?

Uncertainty over the enforcement of new regulation. The extra caseload envisaged by regulatory and legal changes will increase the need for qualified staff of enforcement officials. This is especially true as policymakers and regulators are to some extent learning on the fly. As Evans (2020) observes, it took 75 years for seat belts to become mandatory but tech has gone from interesting to systemically important in only the last 5-10 years. Risks of balkanisation and fragmentation in the enforcement environment add to these pressures (Tyler, 2022).

How far changes will be adopted globally is an open question. Experience from other industries shows how the EU has quietly been able to export its regulation (and values) to other markets as businesses find it cost-effective to implement the strictest standard often embodied in EU regulation in order to be compliant globally rather than attempt to run multiple compliance regimes (Bradford, 2020). On the other hand, divergence may persist. That the US is home to some of the world's most valuable companies has given them great political power. According to public data collected by OpenSecrets (2022), the industry went from spending $25mn on lobbying in 2011 to $94.6mn in 2022. This has continued a long-standing trend of big business exerting greater political pressure (Lancieri et al., 2022). This dominance has also made policymakers more wary about taking actions that may compromise technological leadership. China faces a similar set of trade-offs, illustrated by recent efforts to extend an olive branch to major tech groups (Zhang, 2023). In this regard, the absence of such domestic leaders – and the desire to create opportunities for European companies – has generated a different political dynamic in the EU. Finally, there are uncertainties with respect to interactions between these considerations and wider macroeconomic conditions. For example, there may be a higher threshold to green light the type of aggressive M&A that has driven industry consolidation in recent years as interest rates rise and make borrowing to fund deals more expensive, acting as a brake on trends.

More radical approaches carry risks of overreach based on speculative assessments of harm. Regulatory authorities have also considered, albeit controversially, whether to lower or reverse the burden of proving an infringement to antitrust rules on anti-competitive agreements or abuse of dominance. They have also contemplated new tools to address structural competition problems such as tipping even no infringement is found. This preference for false positives over false negatives may have a chilling effect on innovation (Sah and Stiglitz, 1986). Emblematic of these risks are calls to break up platforms in the same way the US telecommunications giant AT&T was broken up in the 1980s. If applied wrongly, such calls would result in considerable aggregate harm to consumers – never mind it is doubtful whether they would actually promote the market conditions needed to sustain competition insofar as network effects inherent in many platforms could simply tip the next market leader into dominance. For now, these calls remain an option of last resort but are unlikely to disappear against a backdrop of inequality and populism.

US lobbying totals in the internet sector, 1998-2022



Source: OpenSecrets (2022).

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Newcastle University, 2 The Helix, Newcastle Upon Tyne, NE4 5TG / The Royal Society of Arts, 8 John Adam Street, London, WC2N 6EZ