



SPTrends

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8 GLOBAL MEGATRENDS

A whistle stop tour of trends shaping mid and longer term opportunities and threats for SMBs

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ABOUT Megtrends



"Megatrends" are long-term and profound changes across society, the economy, technology, and landscape. Such trends give rise to new markets and organisations and condemn others to terminal decline.

Megatrends include the likes of "Sustainability", which may seem too expansive for any business to contemplate in entirety. Nonetheless, SMBs are seeing prevalent impacts through changes in consumer needs, costs, and regulation for instance.

However, recognising the implications of these impacts, and the "direction of travel" of the forces driving them, offers foresight on what is likely to come next. SMBs that align their plans with the trends will stand to see greater opportunities and be more able to avoid future risks that might otherwise lead to decline or worse.

It's an imperfect science to summarise the infinite forces and changes in different industries, technologies and societies to just a few: This paper, therefore, imperfectly profiles 8 mega-trends that are shaping the business environment, and also gives examples of sub-trends and how aligned businesses are succeeding.

We culminate by proposing an exercise for SMBs to start mapping trends on to their own business, to consider the opportunities and threats these factors are creating.

#1 GLOBAL POPULATION GROWTH



Mulberry St, NY, c1900



GKatmandu, Nepal

Global population has traditionally been positive for human development. However, it is also set to create resource scarcity.

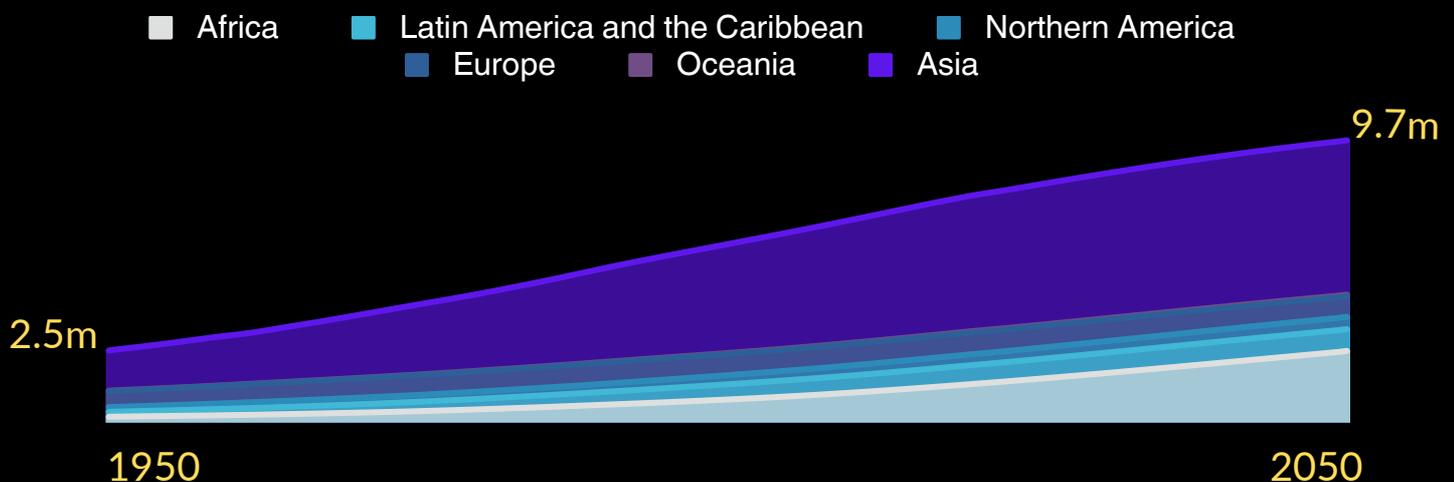
Global population growth has been a significant issue for many decades, and its effects can be seen across the planet. While it classically enables economic growth, it also drives resource demands, on energy, food, commodities and skills.

The pace of today's population change is unprecedented through history. In 1950, the world population was 2.5 billion people; by 2019, it had reached 7.7 billion. This increase is due to a combination of factors, including advancements in medical technology, increased life expectancy, and improved living conditions.

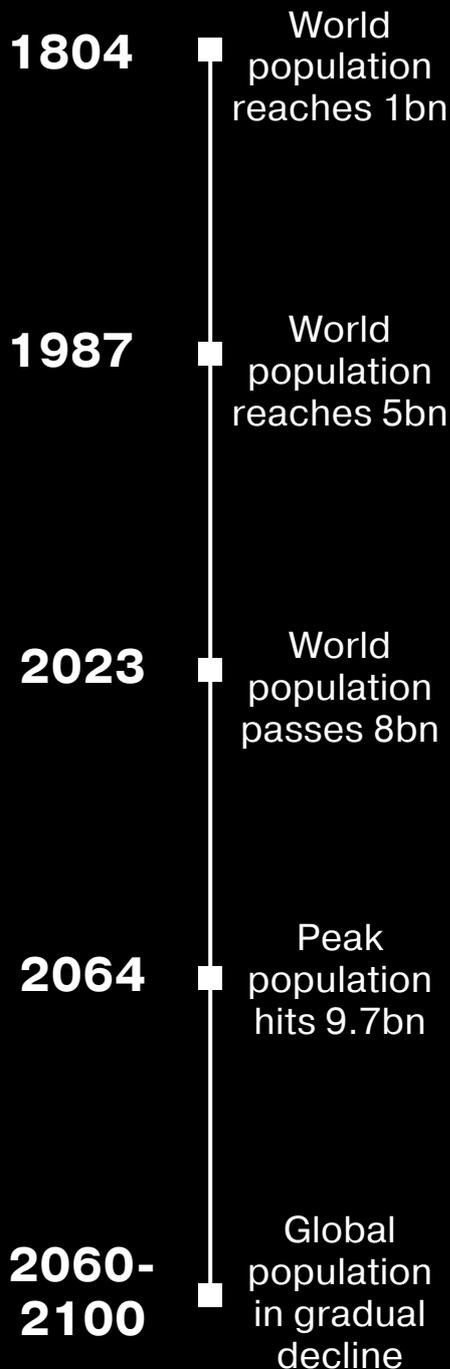
This growth has not been evenly distributed across the world, with some regions experiencing rapid population growth, while others are experiencing declines.

In all, this is creating an ever shifting pattern of supply and demand for goods, services, labour and technology.

World population & forecast by continent (UN)



TIMELINE



Global population growth will continue for several decades but the pace is slowing, largely due to falling fertility rates in developing nations. Experts now generally expect that the world will hit "peak population" around the middle of the century, (e.g. Institute for Health Metrics and Evaluation (IHME).

The impact of population reduction is a new situation for mankind and likely to have profound effects on societies and economies. While a smaller population emits less carbon, it also hinders the economic growth needed to fund new energy technology, while also paying for education and senior care.

Changes in population will also affect trading opportunities. Over the years to 2050, half of the world's population growth is expected to take place in Africa (UN). China's population is expected to fall.

The rise and fall of populations, the regional challenges it creates and the nearing prospect of a shrinking global labour market, are all set to drive a new economic era. Critical technologies, from AI to gene editing, are envisaged as playing a huge role in how society adapts to meet the challenges.

EXAMPLES

One of the prominent business trends to emerge from a growing population is for businesses within or serving African markets. In particular, the growing population is fuelling a fast growing agricultural industry.

Subtrend: African agrotech

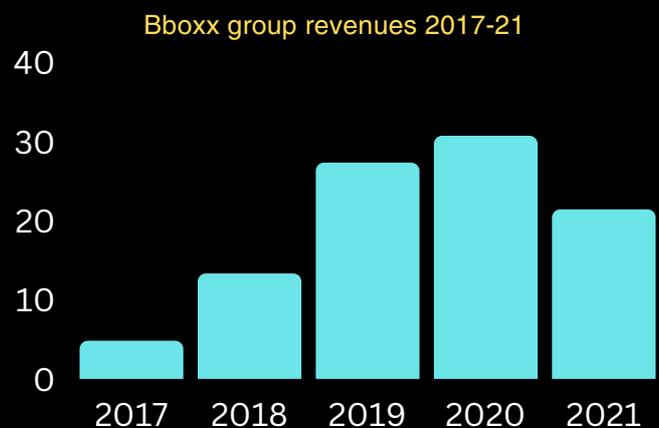
Population growth in Africa is fuelling many new products and ventures, both in Africa and wider afield, to meet the increasing need for food and energy.

Numerous Africa-based companies have formed to meet the increased demand for food across the supply chain, like GreenPath, Twiga Food and Zambeef.

UK companies have also been created to serve the African consumer market, addressing the need for food and energy, like Azuri Technologies that provides affordable solar energy to African households.

e.g. BBoxx

Bboxx is a London based company, founded in 2010, that manufactures and distributes 'off grid' solar systems to Africa and other developing nations. One of the leading products has been BPower, which is an integrated solar and battery storage system. Recent growth has been rapid despite a COVID-hit performance in 2021.



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#2 HEALTH AND LONGEVITY



The world is making imperfect progress towards great equal health and life expectancy outcomes, but the road is bumpy.

All areas of the world have seen progress in life expectancy over the past 70 years, with a 5.5 year global increase since 2000 (WHO). Differences between continents are narrowing.

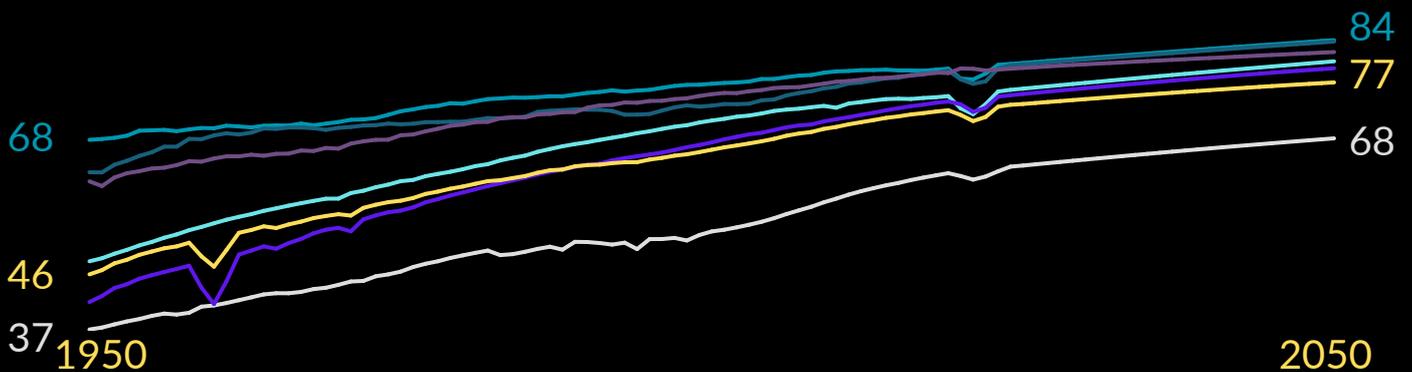


Much of the progress can be attributed to the increased availability of maternal and child care, vaccination and treatments for spreadable diseases, such as AIDs, TB and malaria. However, there are also sizeable challenges still to surmount, with the WHO reporting that "global progress in reducing deaths of pregnant women, mothers and babies has flatlined for eight years" in May 2023.

In more recent years, mental health awareness and management has taken far greater prominence, but global suicide rates have increased by 5% since 2000.

Life expectancy at birth by continent (UN)

■ Africa ■ Latin America and Caribbean ■ Northern America
■ Europe ■ Oceania ■ Asia ■ World



TIMELINE

1977

Alma Ata Declaration signed by 134 nations

2000

UN Millennium Development Goals set

2023

WHO strives to hit "triple billion targets"

2030

End of preventable deaths for children <5 and key epidemics

2030-2050

Universal health coverage



The UN and WHO are instrumental bodies in the job of orchestrating international efforts at providing universal healthcare and reducing avoidable mortalities: Over the past 50 years, there have been a number of critical agreements and programmes including the Alta Ata Declaration signed by 134 nations in 1977, to commit to a goal of universal primary health care.

More recently, key targets were laid out in the UN's Sustainable Development goals of 2015. The WHO is currently targeting "triple billion targets" by 2030: 1bn more people to be i) covered by universal healthcare, ii) better protected from health emergencies and iii) enjoying better health.

In the West, the immediate concern is one to provide sustainable care to the aging population: Over 65s are c20% of the OECD population from 8% in 1960. But 65s+ will double in volume across the world between 2019 and 2050 to 1bn: the challenge is global (UN).

Technology will play an ever more critical role in care provision, in areas including mobile technology, precision medicine, gene editing and AI diagnostics.

EXAMPLES

Health-technology is big business, and rapidly growing in several areas. With the global aging population, so-called "Age-tech" is a critical trend, providing more effective *and* cost-effective support to the elderly

Subtrend: Smart home healthcare

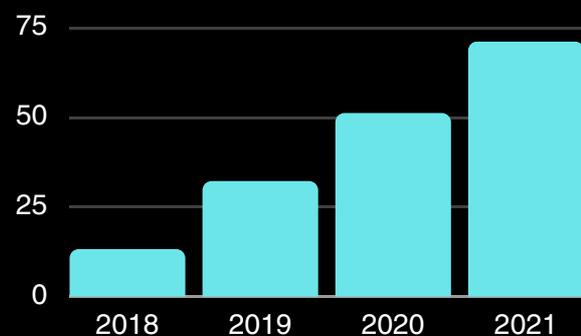
Age-tech is a global business and the provision of healthcare to support the aging population was highlighted as one of the UK Government's grand challenges in their industrial strategy,

The rise of the smart-home is a particularly key enabler: effectively, a platform which facilitates remote monitoring, consultations, diagnoses and even the administration of interventions, Its particularly key as the majority of older people have consistently reported wanting to stay living in their own home for as long as possible. Market analysts are ubiquitous in being bullish about market prospects. For instance, Allied Research predict the market for smart home healthcare will more than double between 2021 and 2031. Meanwhile, various research shows senior populations are becoming more familiar and confident with technology, reducing barriers to use.

e.g. Birdie

Several established companies (e.g. Philips and Tunstall) and newer companies (e.g. Yokura) are involved in the UK market and many more in the US, especially. Birdie - who provide an "all in one homecare solution - grew rapidly since inception and turnover multiplying tenfold from 2019 to 2020, reaching £732k.

Birdie reported employee number 2018-21



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#3 SHIFTING WEALTH AND POWER



China's middle class will be c10% of the planet by 2025 (McKinsey)



Nearly half of global wealth continues to be held by 1%

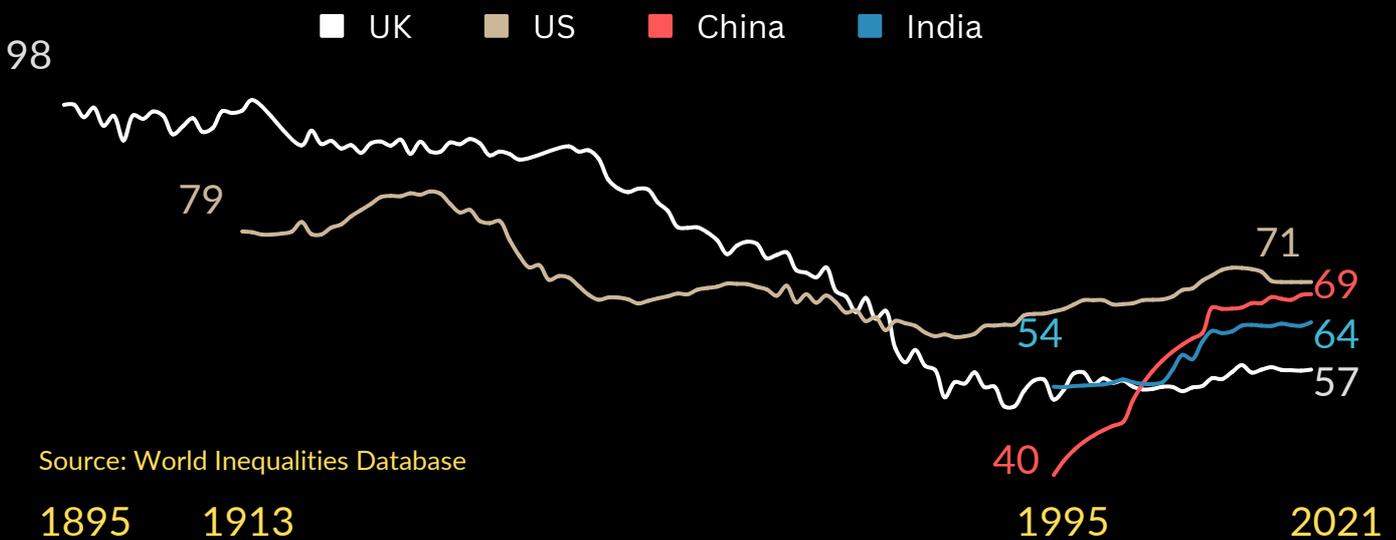
Three key shifts in wealth and power are that 1) Western global influence is declining., 2) Individual wealth remains consolidated. 3) Women are claiming greater influence.

The most profound geopolitical changes are the shift in power away from the West to the East. Growing Asian populations, the geo-political aspirations of China and a new global middle class in developing nations, are all elements in the redistribution of relative global wealth.

However, on an individual level, wealth has been consistently concentrated in the hands of a few for the past decade - the top 1% owned 46% of global wealth in 2021 which varied little to previous years (Credit Suisse). Meanwhile, the top 10% of citizens are all increasing their share, particularly in Asia, but also in the UK, US and much of the West over recent years, albeit to a lesser extent.

Women are increasingly influential e.g. women make up 26% of national parliamentarians globally, compared to 11% in 1995, though progress is uneven (IPU). This mirrors increasing female representation on company boards.

% of Wealth held by top 10% of people in selected nations



TIMELINE

1960s US GDP peaks at 32% of global GDP

1991 End of Cold War I

2023 Cold War II? US GDP is c24% of global GDP.

2030s China to become the world's largest economy

2050s US GDP to have declined to 20% of global GDP



According PWC, 7 of the largest 10 world economies will be in Asia by 2030. Meanwhile, the Chinese middle class has been forecast to grow from 39% (550m) of the population in 2000 to 65% (900m) by 2025 (McKinsey).

The growth of Asian economies, particularly China, is expected to be matched by growing competition for geo-political influence with the West: Some commentators believe we are entering a new Cold War following Russia's invasion of Ukraine, the seemingly close Russian-Chinese ties, allied to China's economic and technological competition with the US. This may lead to future supply chain instabilities and greater GDP spent on defence.

The fate of wealth distribution between individuals remains unclear: Calls for reforms to assist in wealth and income distribution compete with self-interest and factors like inheritance and accumulating property-wealth, which serve to maintain disparities. However, it continues to look likely that women's influence will grow in politics and commerce.

EXAMPLES

Larger and smaller companies alike trade with China, ranging from global defence manufacturer BAE Systems to SMBs like the luxury goods importer Bellissimo Direct. However, political conflict with China could see a shift to other markets in future, as recently seen with Russia

Subtrend: Goods to China & Asia Pacific

Since 2010, there have been sizeable shifts in Britain's trade flow. Export values markedly increased to the EU-27 (+£51bn), US (+£19bn) and China (+£19bn): the rise in Chinese exports represents a growth of 241%. China is also Britain's largest import partner. However, the reduction to exports to Russia show how this may change if political tensions rise with China in coming years.

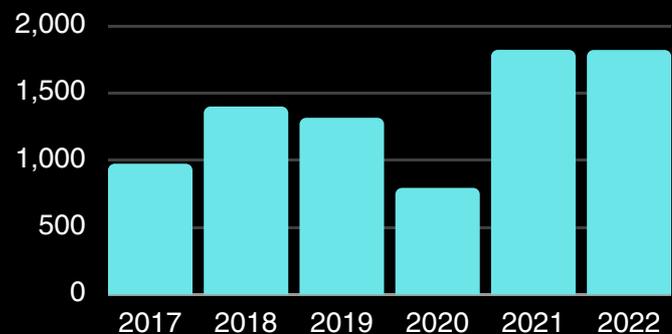
Change in value of UK goods exports 2010-22



e.g. Aston Martin

Key export categories to China include machinery, vehicles, and fuels. Jaguar Landrover is amongst the largest exporters, with 1 in 4 global car sales (97k) in China in 2022. SMBs have also grown sizeable export revenues, like fuel cell company, I.E., and luxury car manufacturer Aston Martin.

Aston Martin wholesale sales to Asia Pacific



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#4 SUSTAINABILITY



Analysts predict the global wind energy may double to 2030



In 2019, organisers of Climate Strikes claimed 7.6m participated

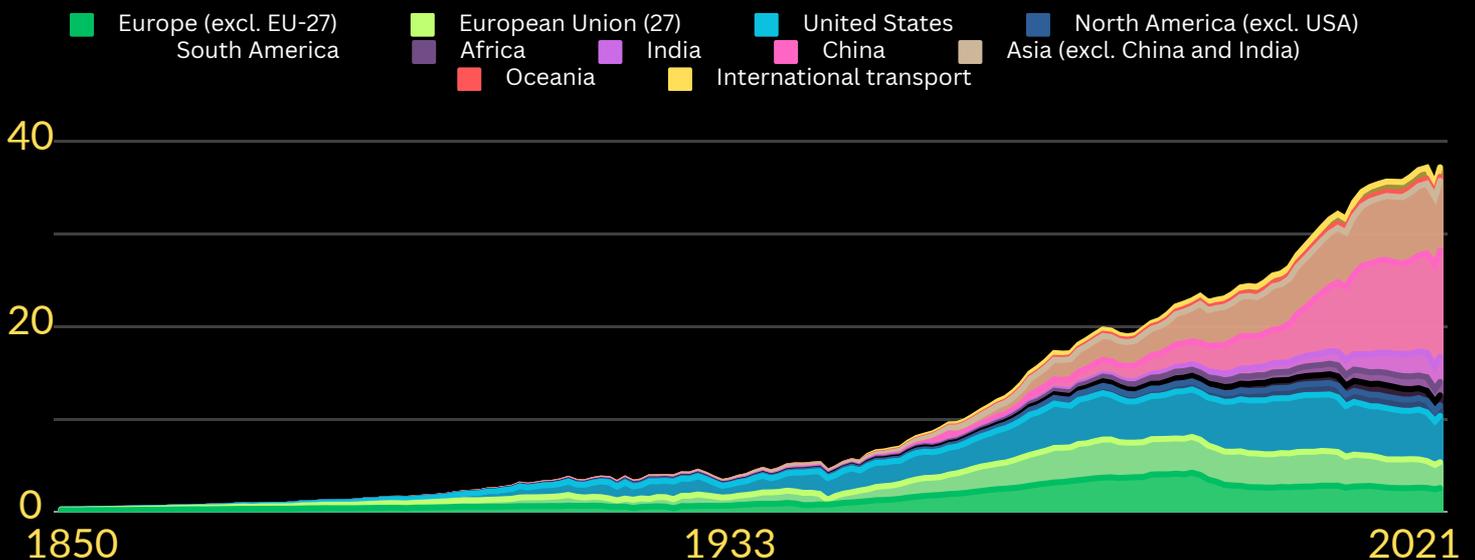
The world has mobilised to tackle climate change, but c1/3 of global energy investments are still in fossil fuels.

Environmental groups, concerned at climate change, started to emerge through the 1970s after the "First Earth Day" in 1970. In the 1990s, the UN's Framework Convention on Climate Change was established, leading the Paris Agreement of 2015, to limit global warming to a target of 1.5 degrees Celsius, signed by 197 nations.

Investments in low carbon technology have been steadily increasing throughout this time, though a report by the International Energy Agency in 2021 predicted that efforts to limit climate change to targets in the Paris Accord are destined to fall short given current progress.

Efforts to achieve net zero are now far wider than energy production, with the greening of supply chains and circular economy. While the global public support these efforts, pockets of resistance and undercurrents of doubt also exist about the efficacy of plans.

Global CO2 emissions by region in billion tonnes (World in Data)



TIMELINE

1970

"First Earth Day"

2015

Paris Agreement

2023

Start of emissions plateau

2030

Costs triple. Regulations / restrictions tighten

2050

96% of consumed energy is electric or hydrogen



The IEA estimate just under \$2.5tr were spent on energy investments in 2022, with growth in energy efficiency, renewables and power grids. However they also believe such levels are insufficient to achieve net zero by 2050 and call for a tripling of investment levels by 2030.

As part of the market system to achieve this, their 2021 scenario for achieving net zero saw global CO2 prices more than triple, with differentials in price for different developed and emerging economies.

Energy production still accounts for 3/4 of greenhouse gas emissions, so the fastest decarbonisation will come in the electricity sector with shifts to wind and solar energy. Electric cars are also an important contributor.

Publics and businesses will necessarily see greater impositions over future years if net zero is to be achieved, with cited examples being restrictions to driving speeds (100km/h) and limits to building temperatures. To counter, there will be millions more jobs across the global low carbon sector, including in emerging sectors like biofuels and hydrogen.

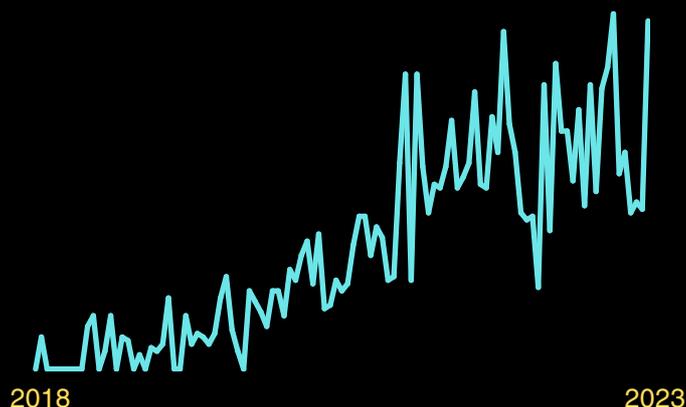
EXAMPLES

The UK's electricity decarbonisation programme has centred on wind which generated 26% of electricity in 2022. Hydrogen is also being increasingly recognised as an important tool for decarbonisation due to its versatility, particularly for storing electricity produced by renewables.

Subtrend: Green Hydrogen

Hydrogen's properties - including that it is the most widespread element there is - have seen it emerge as an energy solution in electricity generation, transport and industrial sectors. So-called Green Hydrogen is only about 0.1% of global hydrogen, but holds high promise as a means to store the energy produced by renewable sources for use when needed, to enable greater decarbonisation.

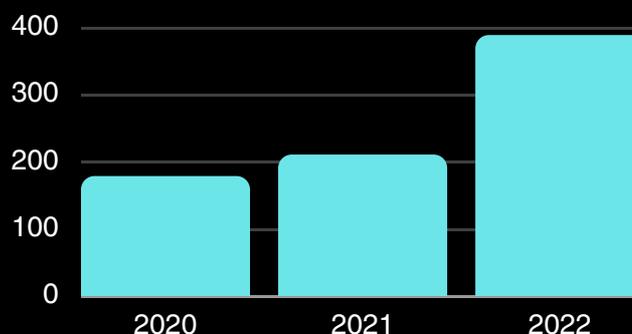
Global interest in "Green Hydrogen"



e.g. ITM Power

Although Hydrogen is a young market, start ups have been securing funding for 1-2 decades. In the UK, ITM Power are an electrolyser manufacturer founded in 2001, creating hydrogen by splitting water into its components. Though only generating £5.6m revenue, they are now scaling-up to meet anticipated demand.

ITM Power staff count 2020-22



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#5 AUTOMATION



Analysts have predicted the warehouse robotics market will more than double by 2027 (Mordor)



A 2022 global report estimated 2.7m robots at work in factories around the world (IFR)

The rise of robotics in conjunction with AI and the Internet of Things is creating so called Industry 4.0 where human labour is replaced. Impacts are pan-industry and pan-society.

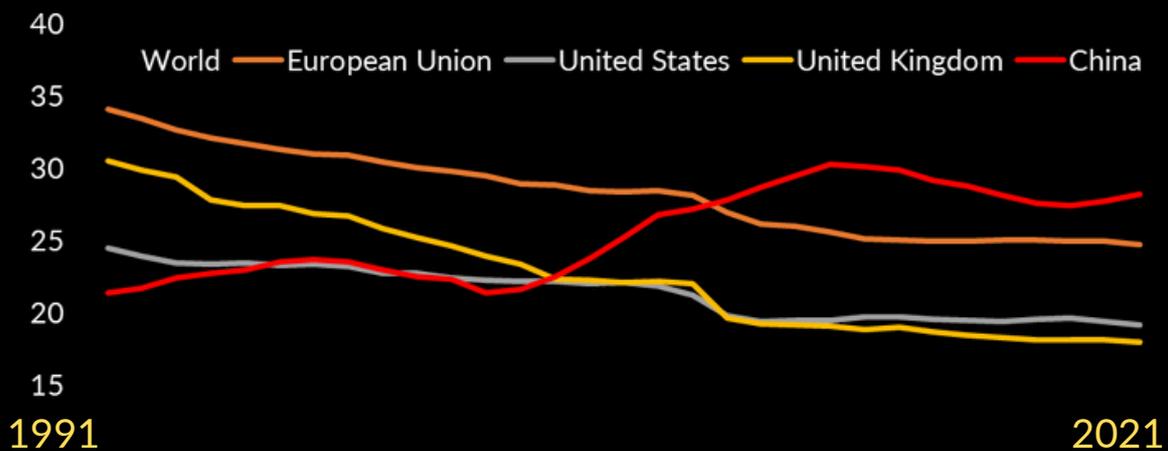
Automation has transformed many businesses over the past decade, with impacts in manufacturing, construction and logistics. Industrial jobs are have already been declining in developed-nations for some years (see below) - analysts have sized the global industrial robot market at over £20bn (Grand View Research) with growth rates cited at 10%-25%/year. Installation and production is being driven from China, where industrial jobs continue increasing.

The concurrent emergence of AI, the Internet of Things and Robotics is enabling what is deemed a new industrial revolution - Industry 4.0 -characterised by accelerated automation and smart, connected supply chains.

Industry 4.0 is being seen across sectors, but automation is not just an industrial trend, with an anticipated wave of domestic automation technologies expected to emerge too.

Overall, the internet of things robotics market has been valued at \$210bn by EO2023 (Future Market Insights, 2023)

% employment in industry 1991-2021 (WEF)



TIMELINE

- 1954** First industrial robot installed at GM
- 2000s** Collaborative robots introduced to work with humans
- 2023** Around a third of work tasks done by machines
- 2030** >500m jobs replaced but new sectors emerging
- 2050** Robots perform most jobs in a new economic model.



The ability for technology to replace human jobs done is already proven - with 34% of organisational processes done by machines (WEF, 2023). Upward of a third of UK businesses were adopting robotic process automation or process mining (aka 'analysis' of event logs) in 2020 (ABBYY) and the growth curves were steep. There is a new major investment or technology development almost weekly e.g. in May 23, a new dexterous robot hand is developed at Columbia University, while logistics company DHL announced plans for another 5k robots.

But the future holds the potential for more profound change still: Futurists envisage 3D printed homes, expert domestic robot servants, autonomous vehicle et al becoming mainstream.

Uncertainty lies in the extent to which the replacement of work will lead to wealth creation or destruction and inequality. McKinsey (2017) estimated that between 400m-800m jobs could be replaced by automation by 2030. Ultimately, a new economic model will be needed if today's model of work becomes outdated, or leads to far reduced need for work, to the extent some predict.

EXAMPLES

Automation is disrupting industries and all parts of supply chains, from mining to contact centre. The greatest impacts presently lie in construction and manufacturing. While industries adopt increasing automation technology, the technology itself is also still evolving.

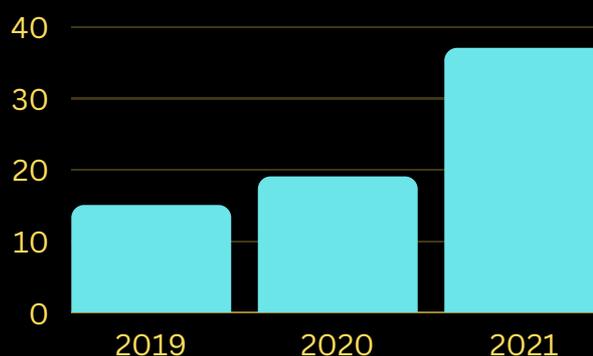
Subtrend: Soft robotics

An industry survey found that 32% of industry professionals believe that "soft-robotics" and new materials will enable robotics to have the biggest impact on manufacturing over the coming years (Protolabs). Soft robotics focusses on building robots from softer materials to be able to operate in constrained spaces or particular environments, as well as being made from less expensive materials. Uses cases include the creation of robots that interact with humans and applications on construction sites where jobs are done in constrained spaces.

e.g. Small Robot Company

"Small Robot Company" are an agritech company that founded in 2017, that build robots for drilling and planting. Designs are the culmination of 15 years of research by founder Professor Simon Blackmore. The vision includes using robots to support global challenges to meet the demand for food in coming decades.

Small Robot Company headcount



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#6 THE GLOBAL BRAIN



Despite progress over decades, more than 1/2 of African upper-secondary children remain out of school (UNICEF)



In 2014, PLOS-ONE estimated there are about 28k peer review academic journals. About 13k journals are now open access

Knowledge is growing on every dimension - digital data volume, internet access, the number of scientific publications and the number of educated people globally.

We have had a century of progress. The advance of global literacy rate has risen from 30% in the 1930s to 86% today. Access to education is also now radically different, though there continues to be a high variance by location: numbers of 6-18yr old African children not at school are estimated at 244m for instance (UNESCO).

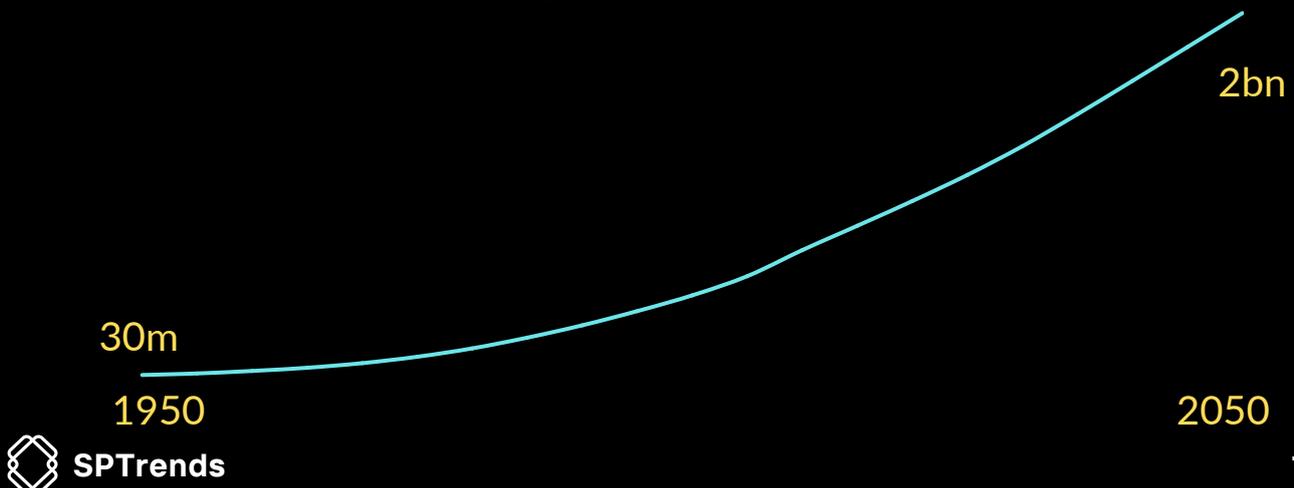
The Internet is a great enabler to the further diffusion of knowledge herein: internet users rising from 7% of the global population in 2000 to around 65% today. Moreover, information on the internet is itself growing by an estimated 25% a year, held across some 1.8bn websites (WEF).

Post-secondary education participation is a rapidly growing sub-trend, about doubling from 2010 to 2030 (see below).

The rate of global academic knowledge production is also accelerating, with an estimated 2m-3m annual scientific articles published. There has also been a quadrupling in open access journals to 13k over the period 2013 to 2021.

Surely but imperfectly, knowledge is growing and spreading.

Global post-secondary educated population 1950-2050 (Wittgenstein Centre for Demography & Global Human Capital)



TIMELINE

1948

Education is deemed a basic human right

2000

UN Millennial Goals included universal education

2023

>17k open online courses have been used by 190m learners

2030

World reskilling programme to reach 1bn worldwide

2050

AI and VR provide personal learning programmes



The Internet has been a huge enabler for the acceleration and diffusion of knowledge production via access to news, educational content and tools.

The emergence of AI in the form of ChatGBT, Bard and a plethora of other tools is bringing a new dimension: AI can aid human search, processing, analysis and presentation of information to accelerate learning.

Conversely, the pace of today's knowledge creation is rendering traditional education systems and processes inadequate: The WEF (2023) argued that "a new reskilling agenda is required that "constantly requalifies employees and creates jobs for young people" in a world of technological change." Their goal was for this programme to reach 1bn worldwide by 2030.

Futurists and experts predict an increasing role for other technologies like Virtual Reality in the future of learning too: Via VR and AI, learning programmes will be personalised, interactive and consumed as continuous events woven into the fabric of everyday life. By 2050, year-or more long generic courses that rely on the memory of participants will likely have long been replaced by other learning models.

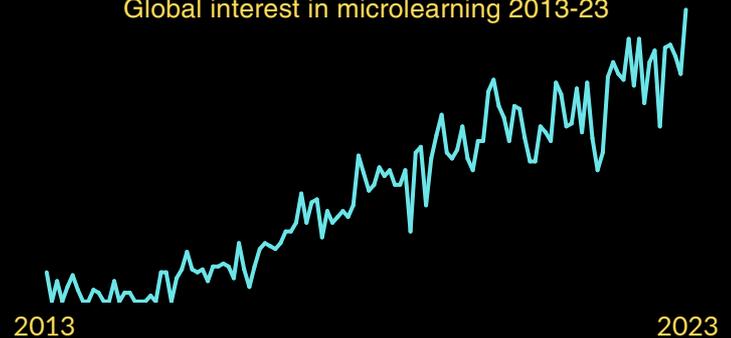
EXAMPLES

Traditional learning methods are becoming less effective at offering the type of knowledge needed for the future economy. One trend that has emerged as a response has been the rise of online course providers, plus the idea of micro-learning, as alternatives to longer courses.

Subtrend: Microlearning

Microlearning gives learners just the information they need at any given moment: it can take the form of a prompt, short-video or FAQ response. It counters the problem of information overload and the ever-shorter shelf-life of the data.

Global interest in microlearning 2013-23

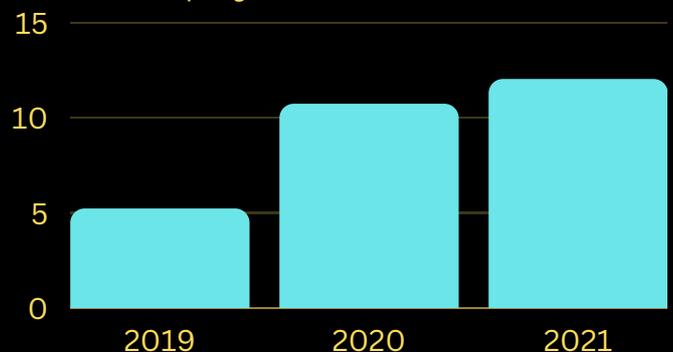


e.g. Sponge UK

Several companies provide micro-learning solutions e.g. EdApp, SkillPill and Grovo.

Sponge UK - founded 2004 - is an arm of an international business that offer a range of solutions, including customised digital learning. The company have won various awards and have Toyota, the NHS and Tesco amongst its clients.

Sponge UK turnover 2019-21



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#7 FRAGMENTING IDENTITIES



A 2021 global survey found 2% identified as trans (Ipsos)



An estimated 15%-20% of the world experience some form of neuro-divergence

As societies become more diverse, identity is becoming more personal in ways that include but transcend today's media focus.

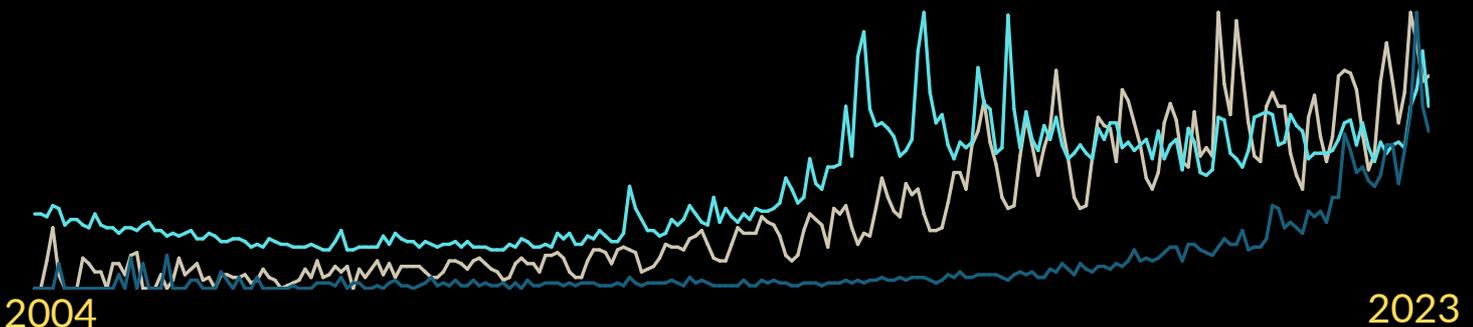
Western society has a long history of migration that has led to diverse populations. In recent times, however, the number of people identifying as part of groups outside of the majority categories of race, gender, sexual orientation, family structure and spiritual belief has been growing more rapidly. Identity has further splintered with acknowledgement of "intersectionality" where peoples' identities are shaped by membership of two or more such groups. Meanwhile, traditional family structures, Christianity and national identity are declining 'norms'.

Uniquely in history, social media meant that groups that were previously on the margins of society could mobilise to lobby for greater recognition and representation. This trend has created some polarising debates in the West about the extent wider society is obligated to adjust norms, policies and beliefs, most recently over trans rights issues.

However, identity is arguably fragmenting even more profoundly than social groupings, as genetics and neuro-research also advance in the quest to better understand identity formation and development at individual levels.

Relative global web-engagement in identity based themes

■ Intersectionality ■ Transgender ■ Neurodiversity



2004

2023

TIMELINE

1830-1920	Abolishment of slavery & women's suffrage
1969	Stonewall riots and start of the LGBTQ movement
2023	Mainstream polarisation over identity politics
2030	Emergence of gene editing & DNA databases
2030-2050	Towards predictive personalised DNA tests



On one level, societal trends, like the decline of Christianity, nuclear families and national identity, seem set to continue (e.g. Pew).

The social science research informing many of today's debates into the formation and development of identity views societal factors as dominant. However, there are parallel scientific fields that see identity as the result of more unique genetic, biological and psychological factors.

Meanwhile, the potential for society to deepen its understanding of both social and genetic identity can be seen in the growth of DNA databases for understanding ancestry and social history e.g. AncestryDNA tested 15m people in 2019.

Sociological and psychological identity fields seem likely to converge in future, to understand identity more holistically (Crocetti et al). The key driver is to understand one's genetic history is presently health issues, but such enquiry also satisfies timeless curiosity and a human need for people to define their uniqueness. By 2050, today's notions of identity could have fragmented in entirety.

EXAMPLES

The evolution of individual identities has always been entwined in art, fashion, music and culture of the day which become vehicles for self-expression: In the Victorian era, fashion and fabric designated nobility status. In the 1960s, the hippie movement celebrated counter culture,

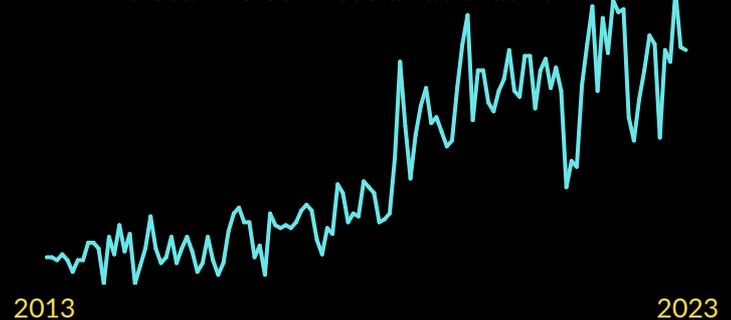
Subtrend: Sustainable fashion

One of the prominent fashion movements of today is the reflection of values like sustainability and inclusion within fashion. While mainstream retailers "green" their supply chains, newer brands are specialising in sustainability as integral to their strategy and business model.

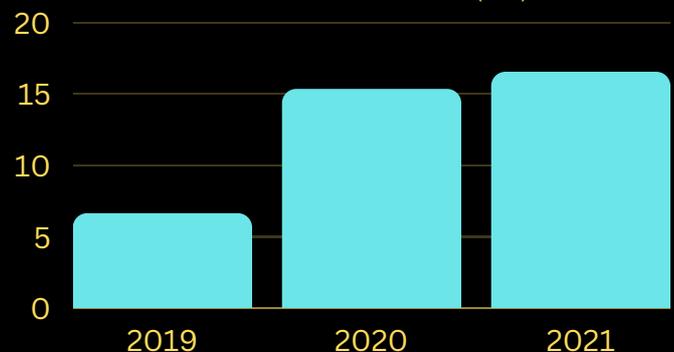
e.g. TeeMill

TeeMill evolved from an online sustainable fashion brand, Rapui, to being an open access technology platform that allows others to create and distribute their own sustainable fashion brands online. The company specialises in minimising waste, using renewable energy and having products that can be recycled.

Global interest in sustainable fashion



TeeMill turnover 2019-21 (£m)



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#08 NEW CONSUMERISM



Household debt has escalated rapidly in the Western world over the past decades



Bitcoin was a forerunning in decentralised digital currency, which has c420m global users.

The role of the internet on consumer behaviour has already been profound, but digital currencies are emerging as a second wave of the digital consumer revolution.

e-commerce continues to grow rapidly around the world: eMarekter (2022) predicting the retail e-commerce sales that had reached \$1.3trillion in 2015 will rise from \$4.2trillion in 2020 to \$7.3 1trillion by 2025: equating to total of about 20% of all retail sales in 2020.

Even where the purchase has not been made over the internet, digital marketing, social media and online-reviews have are often instrumental to consumer choice.

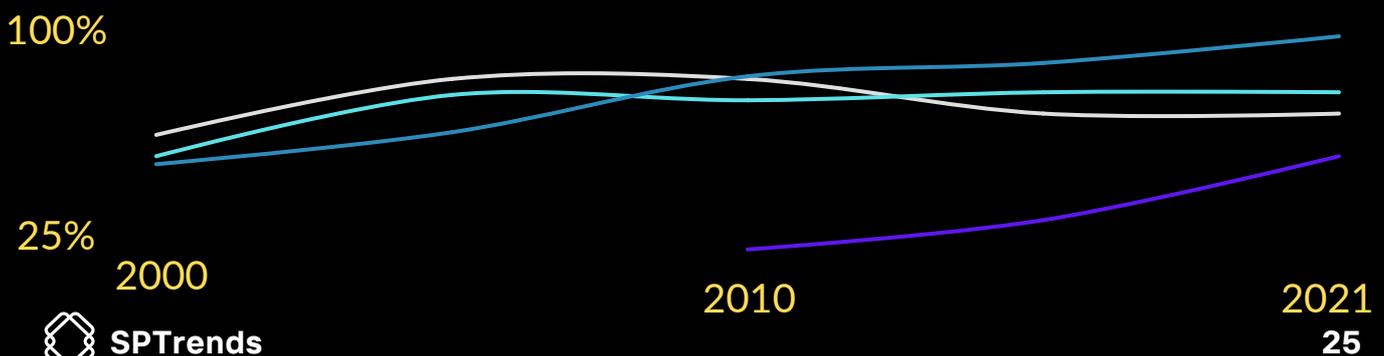
The next emerging wave of digital disruption promises to take place in the nature of payments and money itself.

We are only at the start of the influence of digital currencies and technology that influences how we buy.

Bitcoin has achieved mass adoption but is only one of 20k digital currencies. With consumers ever more conscious of a product's ethics, technology promises to make fully-informed purchases about, for instance, carbon footprints. We are also starting to see innovations that might help people better regulate their money in the face of rising household debt.

Household debt as % of GDP in selected countries (IMF)

■ USA ■ UK ■ Canada ■ China



TIMELINE

1994 Foundation of Amazon, 3 years after the WWW

2008 Launch of Bitcoin

2023 Global e- & m-commerce growth

2030 Adoption of CDBC's and automated homes

2050 Buying is via digital currencies between smart devices



Many innovations over the past 30 years have sought to make shopping easier: online stores (Amazon, eBay), wholesalers (Alibaba), payment methods, (Paypal, Stripe), currencies (Bitcoin, Ethereum) and voice commerce (Alexa).

The main attraction of cryptocurrencies has been to decentralise finance, effectively removing banks or central authorities from transactions. Various scenarios could yet emerge on how these get used in future alongside other technology like AI and the Internet of Things (IOT):

In one scenario, consumers exert control: They might directly negotiate with retailers rewards for opting-in to see ads, for instance. Toward 2050, a proliferation of smart IOT-enabled devices is expected (Statista), which could do consumers' shopping for them (Zigbee) e.g. smart fridges order the groceries. AI apps and cryptocurrencies work on the consumers behalf to find, choose and order them.

In another scenario, Governments exert control consumer spending: Over 100 countries are now experimenting with Central Bank Digital Currencies (CDBC's). Critics warn that these will offer Governments the means to restrict personal freedoms to buy and sell, under auspices of controlling personal debt, health or climate change.

Much is still to be decided in coming decades.

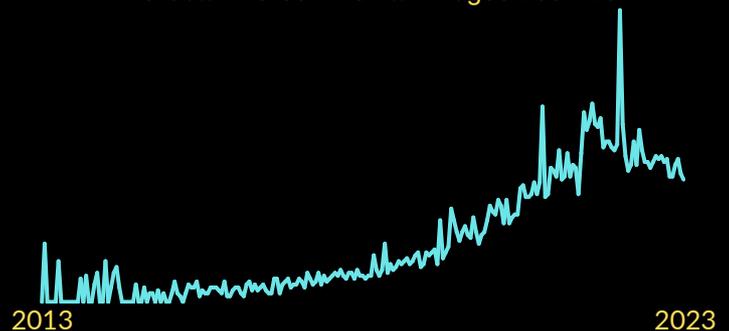
EXAMPLES

The smart home is a key platform for the emergence of new consumer behaviour in the coming decade. One aspect of the vision sees appliances and devices communicate directly with retailers or service providers: a reality underpinned by a drive for open standards via Project CHIP.

Subtrend: Home automation

"Home automation" sees connected devices, smart, IOT-enabled appliances or devices autonomously transacting with retailers to reorder products or services. Amazon's Dash button and Samsung's Hub Fridge are early examples of so-called "Machine to Retailer commerce. An emerging category of home automation systems (e.g. Apple Home Kit) also signals the direction of the future home.

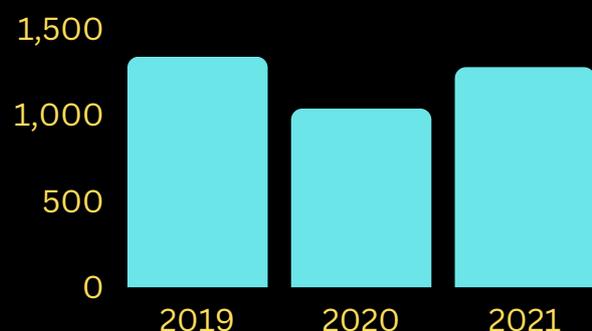
Global interest in smart fridges 2004-23



e.g. LightwaveRF

Despite market growth, it has not been plain sailing for various players. There have been a plethora of local and regional smart home installers appearing in recent years, but some have struggled. LightwaveRF, founded in 2008, position themselves as the UK's "fully integrated home automation" company with a platform managing lighting, energy and security. The Group returned to growth in 2021 after dipping in 2020.

LightwaveRF Group turnover 2019-21 (£k)

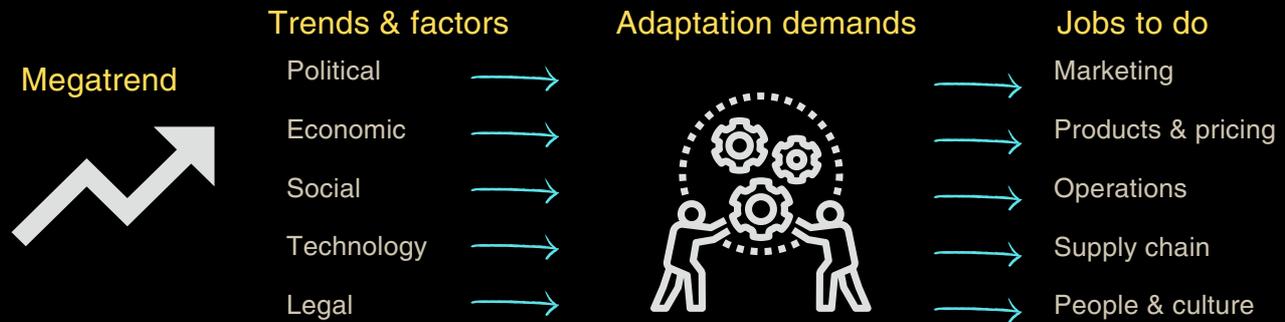


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SUMMARY

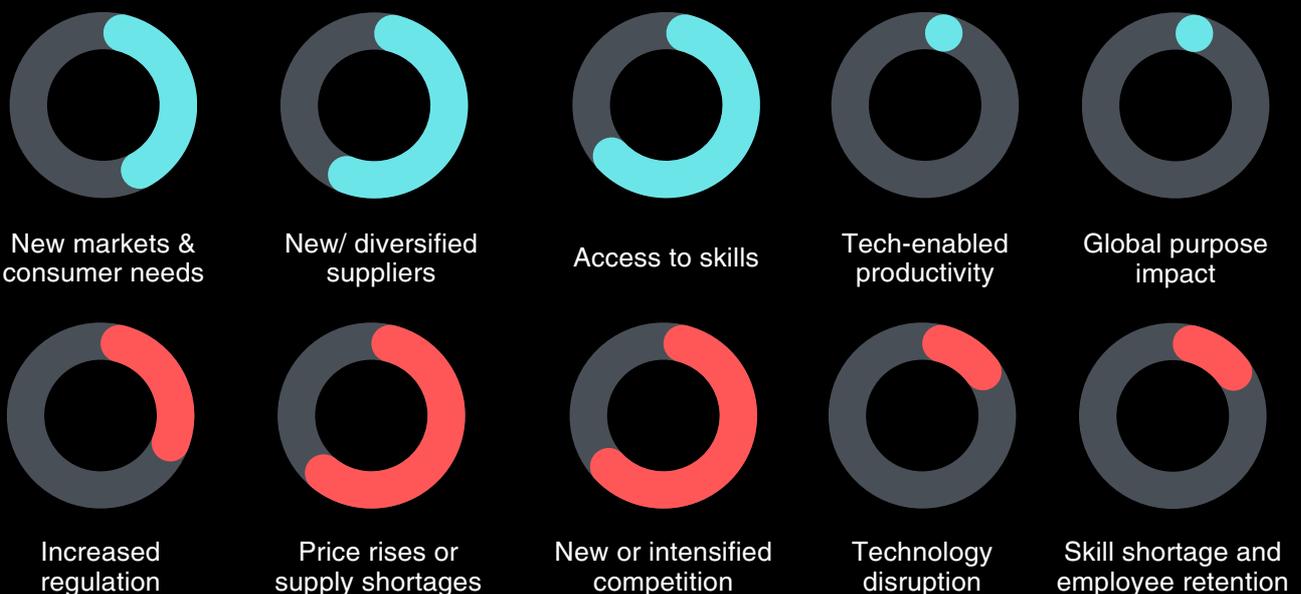
In summary, there are a number of wide ranging global trends which are, in turn, driving many trends across the business environment, shaping the regulation, economics, societal impacts, technology and environmental concerns. Nearly all of the trends outline in this report will be impacting every UK business in one way or another over coming decades, if not already.

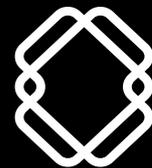


Business will also need to consider the indirect impacts i.e. how the response of other organisations - competitors, suppliers and distributors - to those factors, as well as the impact on consumer behaviour of course. However, while these trends might seem daunting, it is also worth remembering from the examples provided that they are a source of great opportunities for the businesses to align, by way of new segments, products, business models and supply options.

Q. So where to start? A. We'd recommend to discuss the opportunities and threats that these factors are creating. Doubtless, your business will be tackling factors already - so perhaps consider the areas where there are strategic gaps in response? *And take it from there....*

Opportunities and threats (example)





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