

The Disruptive Strategist

Marketing material for professional, institutional and accredited investors

Executive Summary

In our Q4 2021 newsletter, members of GAM Investments' Global Equities team cover topics including a review of the key events in 2021, the metaverse, big data and additive manufacturing.

Mark Hawtin looks back at the major themes of 2021, including China's travails, the fading of a number of work from home names and the potential for SPACs.

Mark examines the opportunities created by the metaverse, including luxury brands and design & manufacture.

David Goodman highlights the evolution of competitive advantages that can be gained by using big data and some examples of companies which have leveraged data.

Kevin Kruczynski discusses additive manufacturing, more commonly referred to as 3D printing, and how its long-run impact could be underestimated.

Appearances can be deceptive – a strong year overall but with plenty of fallen angels!

By Mark Hawtin

2021 was a year where asset managers found it tough to exceed the market even though indices themselves notched up very strong gains. David Kostin, Goldman Sachs equity strategist, published his first Kickstart of the New Year in January 2022 highlighting the lack of alpha capture by fund managers. In fact, just 20% of core and 15% of growth-focused funds outperformed their benchmarks over the course of the year. We found the going tougher than usual too; it felt as if there were banana skins everywhere - whether it was the meme stock rush in Q1 that led to strong gains for the likes of Gamestop and AMC on a zero fundamental basis or the China meltdown that started in Q2 with the failure of Bill Hwang's Archegos (his funds lost USD 20 billion+ in days before he was forced to close down) and extended into chaos as the Chinese authorities cracked down first on education and then a number of sectors rendering the former shares almost worthless.

Finally in Q4 the market saw a strong swing to value with, as a proxy, the S&P 500 Hardware sector returning a monster 23.8% versus the S&P 500 Software sector's very modest 8.7%.¹ The juxtaposition of sector moves quarter by quarter were hard to navigate, in our view. Atypically for us, we identified the swing to value well, spotting the real risk early on. There were plenty of areas to capture interesting growth themes without necessarily having to focus on high growth individual names. Within the Digital 4.0 theme that we identify as a potential opportunity over the next five to 10 years, there are clearly high growth, well known top performers like Nvidia, for example, as an enabler for data and AI – its shares rose 125% in 2021¹ – or Ambarella in autonomous driving whose shares rose 120%. But equally, the very same theme of big data can be expressed through owning storage names that carry significantly less risk. Seagate, as an optically boring hard disk drive manufacturer (HDD), rose 82% in 2021 based on many of the same drivers as higher risk Nvidia while ending the year at a rather modest 12x prospective earnings versus the rich 50x attached to Nvidia.

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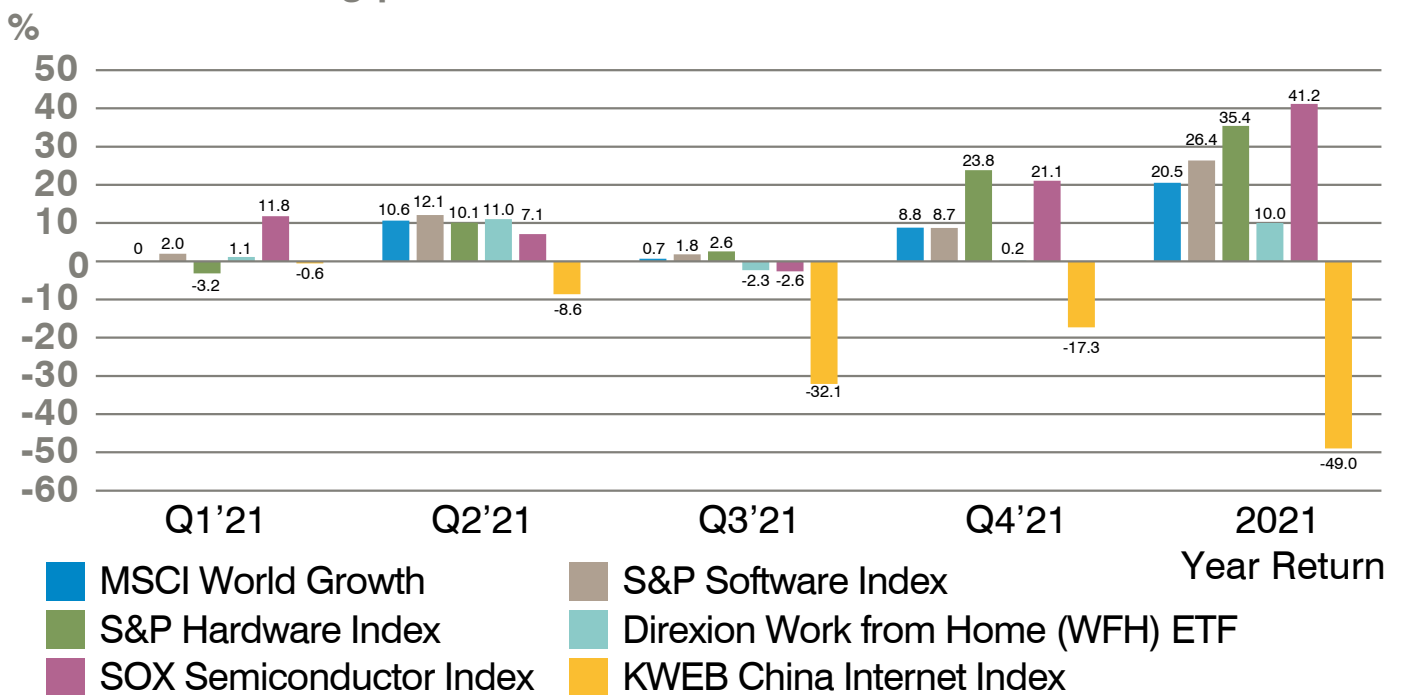
¹ Source: Bloomberg, as at 31 December 2021.

Elsewhere, the connectivity of everything drove opportunity in industrials, healthcare and transportation. We always look to identify the right theme and then express that with the best balance of risk and benefit, not necessarily in the highest profile or well-known names.

China was a difficult market for disruptive investing in 2021 and added yet another strand to a complex picture of inter-sector performance. Chart 1 below lays out the key factor drivers as we saw them for the year and shows quarterly shifts.

Chart 1: Index performance in 2021

Return/loss during period



Source: GAM as at 31 December 2021. The mentioned financial instruments shown are presented for illustrative purposes only and should not be construed as a recommendation to buy or sell securities. Indices cannot be purchased directly. Past performance is not an indicator of future performance and current or future trends.

China, particularly as defined by the KWEB US listed Internet names, stands clear as a significant underperformer in 2021. A 50% fall over the course of the year was caused first by the Archegos collapse and then the Chinese regulation of the education sector requiring it to become not-for-profit - that led to shares in the sub-sector falling over 90%.² This was quickly followed by regulator concerns over consumer data and a very public spat between the Chinese authorities and Didi that led to a further wave of sell-offs. Finally, the seemingly inexorable requirement for Chinese companies to seek the relative safety of a Hong Kong listing drove an additional wave of selling as investors, unable to switch from US ADRs to HK listed shares, ran for cover. Chinese A-Shares in sectors actively supported by the government fared far better with electric vehicles (EV) and renewables names in particular making strong progress.

² Source: Bloomberg, as at 31 December 2021.

The S&P 500's 29% 2021 gain³ was a tough bogey for many companies and certainly for asset managers. FAANG had plenty of diversification in returns with Apple and Google beating the S&P and Meta (formerly Facebook), Amazon and Netflix underperforming. While not FAANG names, Tesla and Microsoft should be included in the mega-cap list. They both outperformed well, up around 50%³. The dispersion is a worrying sign in some ways; during the final week of 2021, Bloomberg reported that as the S&P 500 made yet another all-time high, 334 companies trading on the New York Stock Exchange were making 52-week highs while twice that number were making 52-week lows – the last time that happened was just before the 2000 crash. In addition, the Wall Street Journal reported that the average PE of the top 10 names in the S&P by value were trading at a 68% premium to the 25-year average, a period that includes the 2000 dotcom bubble. Clearly there are cautionary signs in the market and that, we believe, has led to some air being very firmly squeezed out of some over-hyped parts of the market. The ARK ETF highlights this as well as anything, with a 23% decline on the year and an almost 40% drop from the early year highs³. Cathie Wood, CEO of Ark Invest, commented that she had never seen her portfolio down in an up year for the market and cites a 40% compound return expectation following the fall. A strong performer over the years for ARK has been Tesla; it continued its meteoric rise following a 750% gain in 2020. Valuation here still dumbfounds us – the market capitalisation of just over USD 1 trillion equates to about USD 1 million per car produced at the current run rate. Comparisons have been made endlessly, but as a reminder, Toyota as the world's largest car manufacturer (by number of vehicles produced in 2021) produces 10 times the number of cars annually or about 10 million and has a market cap per car of just USD 31,000.

Among other large-cap names, the underperformance of Amazon stood out with a rise on the year of just 2.4%³, which reflects a fading of WFH (work from home) names. The chart above shows that the WFH ETF rose just 10% in 2021. There are many names that lost a great deal of ground led by Zoom, down 44%³. Other WFH favourites also fared badly - the worst performing name in the S&P Internet Select Industry index was Contextlogic (-77%)³, a plain vanilla e-commerce company. We have believed for some time that non-differentiated e-commerce would likely struggle – in 2021 their star finally fell. While Wayfair for example was down just 12% on the year, it fell from a high of USD 369 to just USD 190 at year end (-49%)³. In Europe, losses were more substantial on the year overall – Allegro (the Polish Amazon) -54%, Home 24 -48%, Asos -42%, Boohoo -42%³. Food delivery, driven by the same WFH boom, fell back too. Deliveroo made a shocking stock market debut, collapsing from a day one IPO price of 390 pence. It closed the year at 210 pence³ - yet another disappointment for UK plc looking to be a home for innovative companies to go public. In addition Just Eat Takeaway fell 48% and Delivery Hero fell 23%³. Valuation has begun to matter in many names hyped up by the pandemic technology feeding frenzy. Other notable bottom performers included Teladoc in tele-health (-42%) and Fastly in online content delivery (-57%)³, both well-known WFH names.

The other major trend that drew our attention during the course of the year was the interplay between growth and value. While not as obvious as in previous cycles, like the 2015/16 rotation, there was a clear tendency towards the safety of profitable cash generative businesses with a growth bias, often known as GARP (growth at a reasonable price). This led the market, looking for innovation, to alight on semiconductors, a sector seemingly offering all of the above. The PHLX Semiconductor index (SOX) rose 41% during 2021³ and valuation for the index has risen to a heady 30x earnings and about 7x revenues. We believe that whatever the growth outcome for 2022 and beyond, the valuation attached to semiconductors is now such that the growth / value risk has likely been sharply reduced.

Finally, in summing up the year and the way in which the market has become more sanguine, the IPOX SPAC index reached an all-time high in February 2021 having rallied almost 100% from the October 2020 lows. It then proceeded to fall 34% through to the end of the year³. This hides the true fate of many names that did far worse. While a SPAC waiting for a deSPAC deal might tend to trade around its issue price of USD 10 and thus hold the index up, there are many cases where deSPACs have gone very wrong, in our view. Add together a further need for cash to fund losses in target companies that themselves miss the aggressive (unregulated) forecasts given out at the time of the deSPAC merger and in the market of 2021, investors have exited first and asked questions later. Many of them were invested for the SPAC protection and not the merger opportunity that only further added pressure to prices.

³ Source: Bloomberg, as at 31 December 2021.

One sub sector of note to act as an example of this is digital health, one of the earlier battlegrounds for SPACs looking for deals. The failures have been spectacular. Talkspace in 'behavioural healthcare' was down 82% in 2021 to just USD 2.1 a share⁴; Owlet, which monitors heart patterns via an app, closed the year at USD 2.7⁴; UpHealth, described as a 'patient centric digital health platform', ended at USD 3.9⁴, and Beachbody, a Peloton-type clone, closed at USD 2.5⁴. All these companies would have started their lives at the base SPAC price of USD 10. In our view, there have been some positives – IonQ trades at USD 17⁴ as possibly the only pure play quantum computing company on the market. The SPAC market as it matures is likely to throw up some interesting opportunities from the embers of the 2021 demise. Quality operating businesses are starting to use the SPAC route to market, like Cvent in event management or Airspan in OpenRAN software for next generation high speed mobile networks, for example. Like many new business types, SPACs are following the tried and tested Gartner Hype Cycle. We are currently in the trough of disillusionment as 2021 has proved to be a watershed year for differentiating winners and losers.

We believe that the 2021 back to reality grounding effect could likely set a much more attractive backdrop for active managers in 2022 (see the strategy section below).

The Metaverse – the next wave of digital innovation?

By Mark Hawtin

As I sat in a London restaurant having Christmas lunch this year, I looked across and spotted a boy in his teens at an adjacent table with an Oculus headset on. This Christmas gift was generating great excitement as he immersed himself in his new experience that was clearly more fun than talking to his parents over lunch. Others in the restaurant were horrified at the lack of a traditional family meal with good, polite, conversation. Herein lies the metaverse hype – a world where we are all immersed in virtual reality and living a totally parallel life, wandering around with augmented or virtual reality headsets on (AR/VR) failing to engage with those physically around us while we instead focus on the characters in our virtual world. But this will only be a very small minority use case for the metaverse. Far from being a futuristic brave new world, the metaverse will be a natural augmentation of the existing online one that we live with every day. Finding a definition is hard but at its core, the metaverse is a virtual world where large numbers of people can gather to play, work or socialise.

One of the reasons why the theme gets a bad name is that many of the existing and early adopters are in the gaming world. Ask anyone what Roblox is and 90%+ of the time the response will be that it is a gaming website, in our view. Ask the founder and CEO, David Baszucki, and he will tell you it is a platform far more than a game. It is a platform that allows users to create content across the spectrum - in fact, Baszucki's first company, Interactive Physics, was an immersive online experience for teaching physics and partly inspired the Roblox vision. Roblox was named as a smash together of robot and blocks, implying the building of things. There are almost 10 million developers building content for the platform and this is where the metaverse really starts to get interesting. As a virtual platform, where an online avatar identity can be taken across different content arenas like games or education or stores or factories, we can start to see the immersive virtual world that really defines the metaverse. The hardware platform by which we access it is not then so relevant; it could be a VR/AR headset but equally it can be a smartphone, laptop, gaming console or other device. This is where some of the confusion comes from – Mark Zuckerberg at Meta (Facebook), for example, often seems much more focused on the augmented reality aspect, the device platform. This is not the driving force of the immersive opportunity; it is the social (in its broadest sense) aspect where people communicate and collaborate.

Having defined the metaverse, where are the big opportunities for it to create the next wave of innovation? The answer is everywhere! We think it will drive both new revenue opportunities as well as productivity enhancement across so many industries – retail through vStores, production and design in industry, 3D analytics, product demos, virtual tours; these are just a few examples of areas that will likely be highly enhanced.

Swetha Ramachandran, Investment Manager, Luxury Equities, has done work on the impact of the metaverse on luxury brands and by implication retail more generally. There are two interesting areas for retail – the development of the 'virtual' goods market, and also a more immersive brand experience and the impact on physical goods sales. Gucci launched a virtual store on the Roblox platform and has seen 20 million visitors⁵; the experience is so much more immersive than a Facebook page or a short form video clip. Here is a slide from one of Swetha's presentations highlighting the digital opportunity. It is estimated that USD 100 billion will be spent on virtual goods in 2021⁵.

⁴ Source: Bloomberg, as at 31 December 2021.

⁵ Source: Roblox.

Chart 2: So what happens next? Luxury will stay at the forefront of creativity

A virtual Gucci bag on gaming platform Roblox just sold for US\$ 4,115 – for more than the physical version at US\$ 3,400



Digital fashion engages new groups of consumers and furthers the sustainability agenda that both brands and consumers are gradually adopting in their respective practices

NFTs can play a significant role in authentication, eliminating counterfeit and growing trust in the resale market – thus growing confidence in first-hand purchases seen increasingly as an ‘investment’



A recent drop of digital sneakers created by artist Fewocious in collaboration with digital fashion studio RTFKT –featuring three varieties of limited edition digital sneakers twinned with physical counterparts priced at US\$ 3k, 5k and 10k fetched **US\$ 3.1m** in sales in just seven minutes.

Tomorrow’s digital world opens up new opportunities through innovation and disruption

Source: <https://hypebeast.com/2021/5/virtual-gucci-bag-roblox-resale>, <https://www.wsj.com/articles/nfts-and-fashion-collectors-pay-big-money-for-virtual-sneakers-11615829266>. The views are those of the manager and are subject to change. The mentioned financial instruments are provided for illustrative purposes only and shall not be considered as a direct offering, investment recommendation or investment advice. Logos are trademarks of their respective owners and are used for illustrative purposes and should not be construed as an endorsement or sponsorship of GAM.

Morgan Stanley estimates that the broader Metaverse opportunity could add as much as 25% to the luxury brands total dollar EBIT by 2030⁶. Image is everything, particularly in the virtual world; one in five Roblox users change their avatar daily, demonstrating the power of luxury image and brand.

Adidas recently launched an NFT offering. 30,000 NFTs sold at 0.2 ETH (1 ETH = USD 4,000 approx). These tokens were changing hands at 0.8 ETH just a few weeks later⁷. Adidas takes a 10% fee on each transaction, all self-regulated and authenticated on the blockchain. It is quite possible virtual goods transactions could have a measurable impact on profitability over time.

Another area in which the metaverse will play a big role is design and manufacture. Boeing has announced it is creating a digital world built on virtual and augmented reality to design its next airplane. It will aim to “unify sprawling design” processes. According to its Chief Engineer, Greg Hyslop, 70% of quality issues track back to the design process⁸. By creating a 3D immersive environment twinned with robots that speak to each other, and mechanics connected by USD 3,500 HaloLens headsets made by Microsoft, it will be possible to streamline and improve the process significantly, in his view.

⁶ Source: Morgan Stanley Research.

⁷ Source: The Verge.

⁸ Source: Reuters – [Boeing wants to build its next airplane in the ‘metaverse’](#) 17 December 2021.

Figure 1: The metaverse brings together the physical and virtual worlds in design and manufacture



Photo source: PTC 2021 Investor Day. For illustrative purposes only.

Figure 2: The metaverse brings together the physical and virtual worlds in design and manufacture

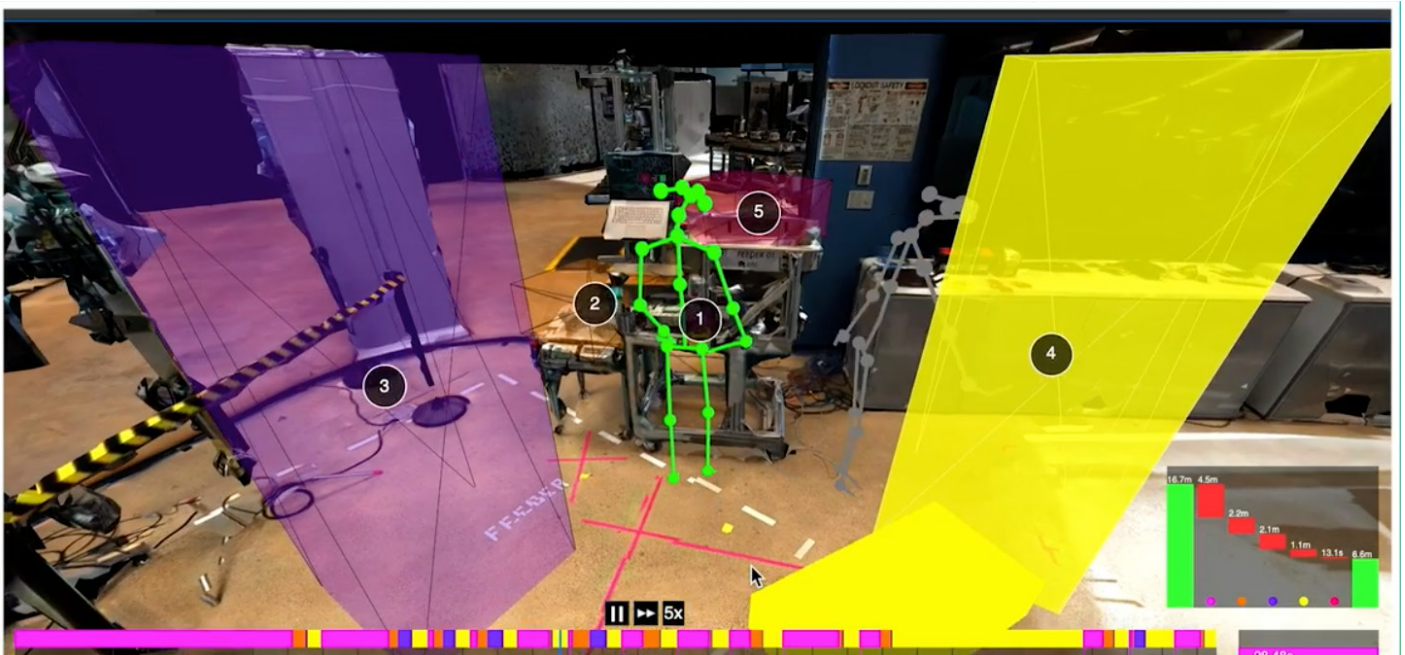


Photo source: PTC 2021 Investor Day. For illustrative purposes only.

These examples in retail and manufacture only scratch the surface of an opportunity that sits squarely in our Digital 4.0 theme. A recent Grayscale report predicts that the metaverse will be a USD 1 trillion market⁹. It is likely to be far bigger than that, with a number of new companies emerging as new platform winners for this Web 3.0 iteration in the same way FAANG names have been for Web 2.0. Finding the next company with a market capitalisation exceeding USD 1 trillion is one big game hunting project but there will be many companies which exist today as mature leaders in their respective markets that will see a new and significant driver of additional revenue and earnings from metaverse engagement; looking at these companies through this disruptive lens will be critical in identifying the winners and losers.

The competitive advantage of big data

By David Goodman

Data is the new oil – While this analogy may not be new, it still holds true with data powering entire enterprises and providing good value but which, like untreated oil, is almost worthless if not handled in the right way, in our view. According to a July 2020 survey of 1,500 worldwide business leaders commissioned by Seagate technologies, about two thirds of data available to enterprises remains unlevered. “The report and the survey make clear that winning businesses must have strong mass data operations,” said Seagate CEO, Dave Mosley. “The value that a company derives from data directly affects its success.”

Adopt a data strategy or die – This much is certain, we are on the cusp of a new technological age where, regardless of a company’s industry or size – the key drivers for long term outcomes are data and how that data is used, with the latter critical for competitive advantage. The GAM disruptive growth team refers to this as Digital 4.0.

Evolution of competitive advantages

If we look back over the last three centuries, we can broadly identify four major industry technological changes that drove clear competitive advantages for enterprise.

Technology - Mechanical equipment powered by steam eg weaving loom



Competitive Advantage Production Efficiencies

| Source: Getty.

1780+ - Mass production powered by steam, brought huge efficiencies: Big business took off during the late eighteenth century when a new source of power, namely coal-driven steam engines, enabled production under one roof – giving rise to large factories and the efficient mass production of standardised goods. Visionary manufacturers, such as steel magnate Andrew Carnegie, took production efficiencies a step further; by making a single company oversee the entire production chain from raw supplies to distribution, they were able to undercut the competition while reaping benefits.

⁹ Source: Grayscale Investments – [The Metaverse: Web 3.0 Virtual Cloud Economies](#), November 2021.

Technology - Mass production assembly lines, electrical energy

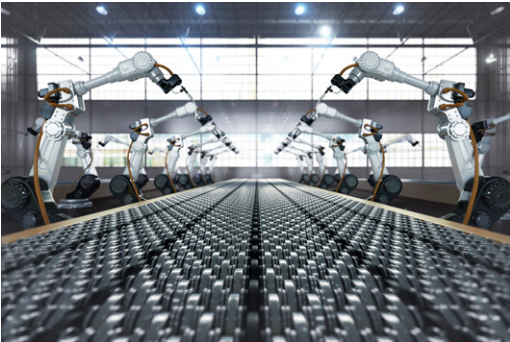


Competitive Advantage
Economies of Scale

Source: Getty.

1870+ - Economies of scale: It was during the nineteenth century that big businesses first realised the benefits to be gained by utilising their innate size and reach. For example, John D. Rockefeller's Standard Oil company possessed enough market power as a result of its size, efficiency and economies of scale to obtain significant railway freight rebates or discounts - enabling the company to sell oil cheaper than their competitors could produce it.

Technology - Automated production using electronics, computers and connectivity



Competitive Advantage
Network Effects

Source: Getty.

2007+ - Network effects: This occurs when a product or service becomes more valuable as more people use it. The larger the network, the more value it has and the harder it is to replicate. According to a study by NFX¹⁰, network effects are responsible for 70% of value generation in the tech industry stating, "...companies that leverage network effects have an asymmetric upside. They punch above their weight. They are the Davids that beat the Goliaths, and then become the Goliaths." The competitive advantages of these network effects have driven extraordinary value creation over the last two decades, as platform businesses have scaled.

¹⁰ Source: NFX – [70 Percent of Value in Tech is Driven by Network Effects](#).

Technology - Intelligent production incorporated with Internet of Things (IoT) cloud technology and big data



Competitive Advantage Data Advantages

| Source: Getty.

2015+ - Data advantages. The benefits of becoming a data-driven company are significant. The more data a business collects, the better the products and services become, which in turn attracts new customers and strengthens relationships with existing ones. Data is becoming the key enabler on all fronts: for developing future products and innovations; for anticipating and influencing what customers will desire and for pivoting to new business prospects.

The most effective data models are likely to be generated by companies with the best data in what is best described as a virtuous circle; customers will flock to businesses providing services or products that meet their needs, increasing the company's data collection and ability to improve their product or service, which in turn attracts more customers, providing more data to improve the customer experience... and so it goes on. This flywheel effect, where the robustness and performance of a system improves exponentially over time, forms a competitive moat around the business that becomes more impenetrable as the organisation grows.

Examples of companies leveraging data to drive positive outcomes

Business to consumer: The more people search on Google, the more data they supply, allowing Google to constantly refine and improve its fundamental performance, as well as tailor the user experience, in our view. For example, Waze the mapping app, is now a Google subsidiary and is essentially a contributing database – the more people use it in real time, the better the mapping experience, and so the more people use it, creating a data flywheel.

Agriculture: The agricultural industry routinely uses sophisticated data collection technologies, eg temperature and moisture sensors, aerial images and GPS technology – all of which provides a precision that is making the sector more beneficial, efficient, safer and environmentally friendly. For example, leading agricultural machinery manufacturer John Deere is leveraging more than 10 years' worth of data collection to enable their latest machines to sense and act in real time to fight weeds and improve crop yield.

Construction, agriculture and transportation: Leading the digital transformation for all three sectors is Trimble, whose hardware and software solutions generate large amounts of data – either through the millions of sensors installed on trucks, tractors and construction machinery, or the tens of millions of users of its Building Information Modelling software.

Trimble's growth will be driven by moving to online platforms: 'Trimble Connect', its construction management platform, enables project data to be shared across various stakeholders, unlocking the real value of data throughout the construction lifecycle, while its 'Farmer Core' platform uses data to integrate and connects all aspects of a farming operation, making it easier to generate and share insights.

Financial Exchanges: When more people go to exchanges to trade, the exchanges can gather more data and sell it to traders. The more the trade, the more valuable and representative of the data, which in turn encourages more trading volume. Indeed, exchanges can monetise this trading data directly by repackaging and selling them to investors and distributors. This flywheel creates a strong moat for the largest exchanges.

Smart cities and communities: Johnson Controls International (JCI), a global technology and industrial business, creates intelligent buildings, efficient energy solutions and integrated infrastructure that delivers smart cities and communities. Its OpenBlue digital platform is an all-in-one system that allows building operators to analyse sustainability, health, water and wellness indicators, while lowering energy, and carbon emissions. Over 4 million customers are being leveraged as a key data source and as they collect data, JCI are using digital mapping, data tagging and AI engines to help model and optimise building performance. By using common data models across building systems, JCI drive faster innovation cycles for healthy, connected, and sustainable buildings.

Healthcare: Intuitive Surgical has pioneered the use of robotics to assist in minimally invasive surgical procedures with their DaVinci machine. Over time, doctors have experimented with novel ways to use the machine to enhance outcomes, providing Intuitive Surgical with real-world data to improve their machine. This performance will attract more surgeons, who in turn collect more data, further improving operations and widening their competitive moat.

To sum up

It is not the amount of data that is important, it is what businesses do with the data that matters. AI is a phenomenon which is cutting across all industries. If data is the new “oil” then AI is the new “machine” giving business intelligence, efficiency, and most importantly competitive advantage.

Industry 4.0 drives the Additive Manufacturing revolution

By Kevin Kruczynski

Additive Manufacturing (AM), also referred to as 3D printing, has the potential to transform manufacturing, but has so far failed to live up to expectations. If we zoom back to the beginning of 2012, MakerBot’s latest home 3D printer had just won awards as the best emerging technology at the Consumer Electronic Show (CES)¹¹. The vision was clear; it was believed we were on the cusp of mass consumer adoption, every household was about to have a 3D printer and the ability to order goods and components online and print them instantly at home. Investor enthusiasm snowballed, and Gartner’s Hype Cycle had the technology approaching the dreaded “peak of inflated expectations”. Gartner’s assessment has proved to be quite accurate; the technology was at a developmental stage with a limited range of applications and printable materials – since this period AM, particularly from a consumer and investor perspective, has fallen off the radar.

This brings to mind Amara’s law “We tend to overestimate the effect of a technology in the short run and underestimate the effect in the long run” the first part of this has played out; but are we now underestimating the potential impact of AM going forward? Away from the limelight, advancements in materials science, design software and print technology has led to adoption across a wide range of industrial applications. The latest generation of computer aided design (CAD) systems, such as PTC Creo, now boast a range of tools to help optimise designs for AM, making it much easier to incorporate the technology. This, coupled with breakthroughs in printing with metals, carbon fibre, graphite and even wood, has expanded the range of use cases exponentially, making it possible to design stronger, lighter, and simpler components. Speed of production has also improved; the latest metal binder jet 3D printers are 100 times faster than previous generations.

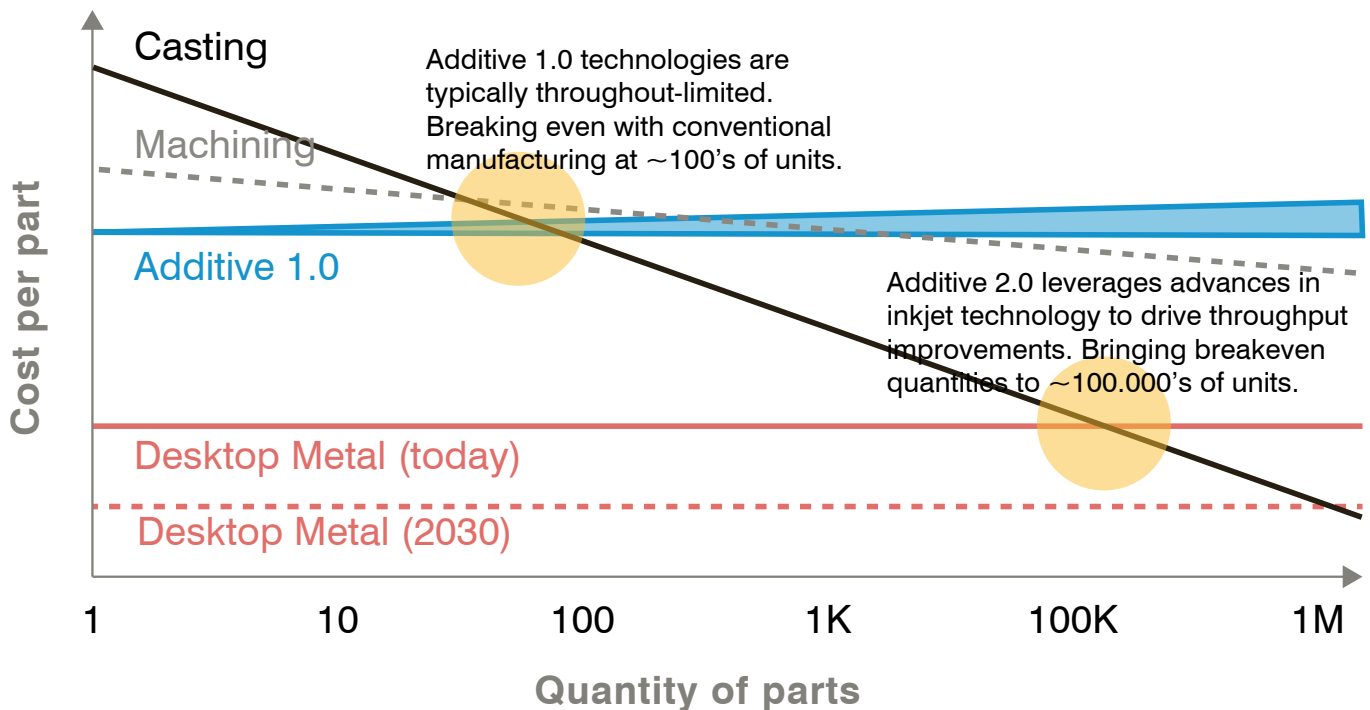
Looking at the cost profile presented by Desktop Metal in Chart 3 below, it is no surprise that AM has so far lent itself very well to industries that have relatively small production runs and highly bespoke requirements. As the cost profile improves with each advancement, the rewards are potentially vast in the USD 12 trillion global manufacturing industry. The early adopters were in high value applications that are less cost sensitive, such as dental labs, where each product needs to be customised for each patient. AM has also been popular within aerospace, where relatively low volumes of highly bespoke parts are required. The digital inventory also means fewer parts need to

¹¹ Source: cnet.com – [MaketBot builds the future, layer by layer, 12 January 2012.](#)

be kept in physical storage, which is attractive as the manufacturers need to guarantee availability of replacement parts over the life of an aircraft. Within the automobile industry, the principal use has been in prototyping, but the electrification of the global fleet is a catalyst for further adoption at the component level, as companies are investing in retooling and reconfiguring production lines at an unprecedented rate. An increased focus on environmental sustainability will also come into play, as AM leads to less waste and lighter components which help reduce carbon footprints and save money. A further tailwind is emerging from the unprecedented disruption in global supply chains in recent years, as trade tensions between the US and China, compounded by the impact of the Covid-19 pandemic have forced companies to question the reliability and sustainability of their global supply networks. This is already leading to a degree of deglobalisation and a push towards more local production and shorter supply chains. As these stars align, AM will likely build a critical mass and generate strong growth rates; as shown in Chart 4 by 2026, the industry could likely be 3 times what it was in 2019, and looking further out some estimates have it crossing USD 100 billion by 2030.

Rather than the consumer-driven revolution that was predicated a decade ago, we are seeing an industrial-led transformation leading the way. AM has a clear role to play in the emerging Industry 4.0 landscape, as industrial companies embrace automation, connectivity, data analytics and other technologies to help manufacturing become more reliable, productive and customer orientated.

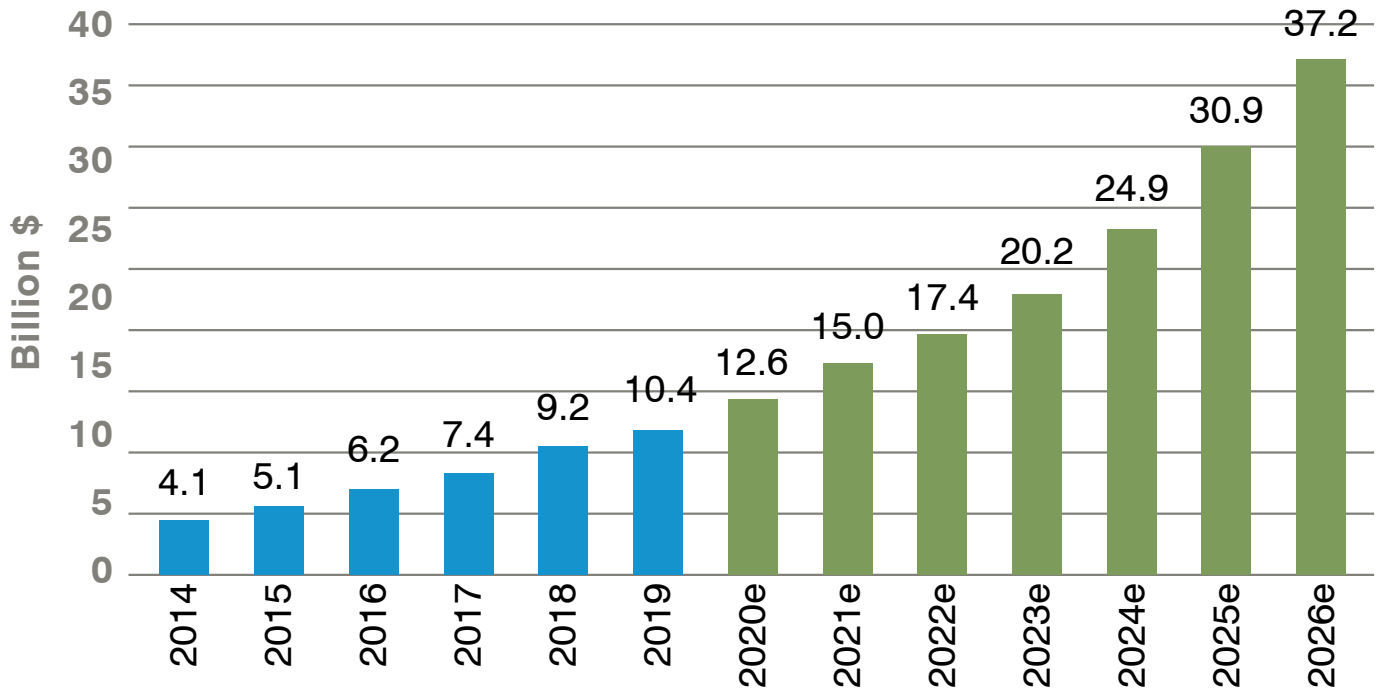
Chart 3: Illustrative breakeven analysis vs. tool-based manufacturing



Source: Desktop Metal as of 31 December 2021. For illustrative purposes only.

Chart 4: By 2026, the AM industry should be 3 times what it was in 2019

Market Size



Source: HUBS Additive manufacturing trend report 2021. For illustrative purposes only.

Look back at 2021 Google Trends

As a light-hearted end of year addition, we look back on the most Google searched terms of 2021¹². Across all categories it is interesting to see that cricket trumps all in trending searches globally; Australia v India and India v England were the two most searched terms of the year. Other sporting searches completed the top five with IPL, NBA and Euro 2021. In news, Afghanistan was number one with Covid vaccine in the top five; interesting were the other three top five news searches – AMC Stock, Dogecoin and GME Stock showing the extent of interest in meme names during the year. Popcat was the most searched game, Eternals the number one in movies and Drivers License by Olivia Rodrigo the most searched song. TV Shows presented an amusing polarisation between one and two. While the highly popular Squid Games took first spot, second went to the period drama Bridgerton. It is also interesting to note just how quickly we move on from one fad to the next. In 2020 the top five overall searches were coronavirus, election results, Kobe Bryant, Zoom and IPL. A quick check on relative trends revealed that holidays overtook Zoom during Q4 2021 for the first time since the start of the pandemic, maybe offering some hope for better times ahead.

Outlook for 2022

We believe 2021 has set the market up for positive opportunities for active management in 2022. The key themes that we are focused on include Digital 4.0 first and foremost - this is, in our opinion, the fourth major digital wave and will bring the internet of everything to sectors less disrupted to date. These include financials, healthcare, industrials and transportation. Significant advances in AI will likely drive investment in innovation by existing category leaders to both take additional market share and to develop new revenue streams. Both could likely lead to revenue and earnings growth that exceeds market expectations and thus creates the delta that we look for.

It will not be a one-way market and care will likely be required, particularly where valuations cannot be supported. The focus in a more risk averse world is likely to be on profitable companies with growth that trade at a discount to fair value. This will be a prime area of focus for us in 2022.

¹²Source: Google Trends – Year in Search 2021.

In addition there are some areas that we think have outsized upside in 2022 as the market recovers from either shocks (in the case of China) or hype cycle factors (in the case of SPACs).

China has been beaten down extensively in 2021 and we are optimistic to see an opportunity that could benefit from this as the regulatory picture becomes clearer during the first half of 2022. We are not rushing as there are further potential shoes to drop but risk reward appears favourable. SPACs could likely become a really viable and accepted route to market for companies unwilling to pay exorbitant investment banking fees and unwilling to have long-standing employees locked up for extensive periods post listing. We are watching the space closely and expect to begin allocating capital to disruptive companies exiting the private markets at favourable valuations. To be clear, in our view, we do not see opportunity in the SPAC trading-alone period itself but rather after a merger deal has been agreed and approved. As mentioned earlier, Cvent is a good example of such a company. It has a long heritage as a SaaS provider to the event industry and was taken private in 2016 at a valuation of USD 1.65 billion¹³. Its return to the public markets via a SPAC is one of the more blue chip exits to date.

There are also areas that we are looking to avoid. WFH names continue to look expensive with a few exceptions, and plain vanilla e-commerce will find the going increasingly difficult. We are concerned that private valuations for high growth pre-IPO companies remain unsustainably high. We expect to see significant write downs on private portfolios, especially where companies fail to meet forecast revenues and profitability, and this will inevitably have a further effect on the valuation of quoted counterparts.

The outlook remains positive for disruption and the onslaught of an ever more digital world. This will, as ever, emphasise the divide between the top and bottom performers, thus potentially increasing the alpha generation both through finding those top performers but also by avoiding bottom performers.

¹³ Source: [Cvent – Cvent Enters into Definitive Agreement to be Acquired by Vista Equity Partners for \\$1.65 Billion](#), 18 April 2016.

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