



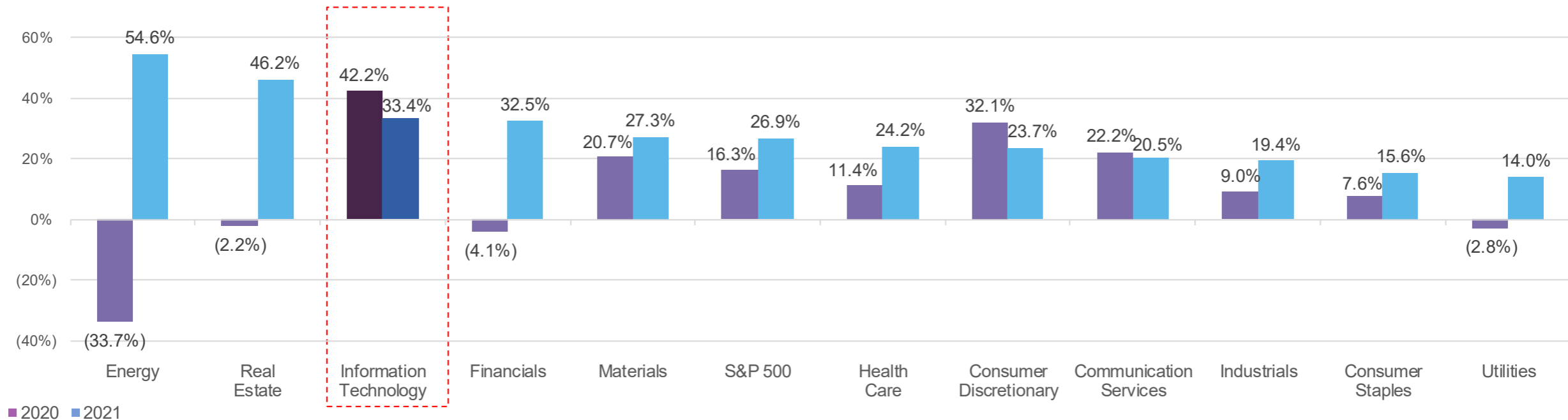
Technology Sector – 2021 Annual Review

Corporate and Investment Banking

EVALUERVE

Technology Sector to Remain the Best Bet in the Long Term

Market Performance of S&P 500 Sectors in 2020 and 2021

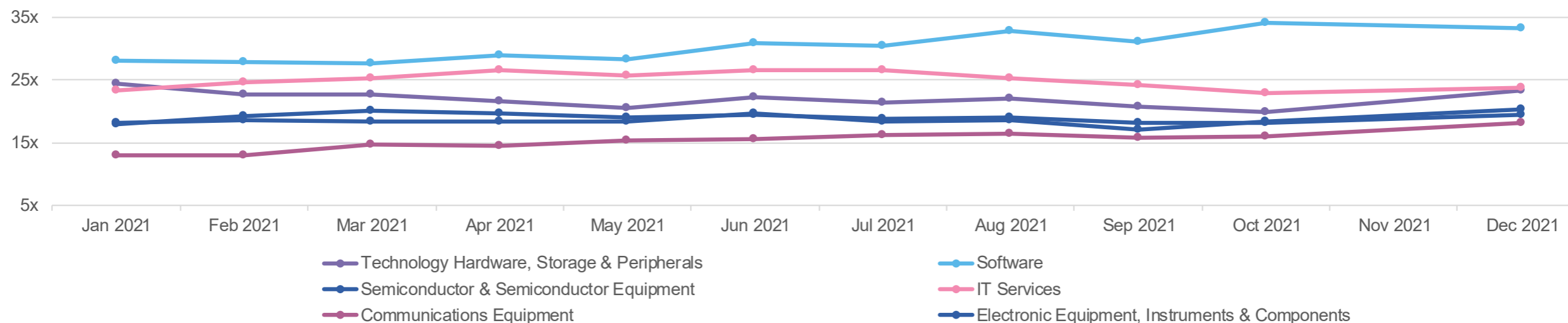


- The technology sector saw a big boost in 2020 as the COVID-19 pandemic forced people to work from home amid lockdowns. During the year, the sector gained 42.2%, driven by companies that were able to quickly adapt to the change
- In 2021, cyclical sectors, such as financials, industrials, energy, and consumer discretionary, took the center stage. As the year progressed, the technology sector was overvalued due to continued high performance. This led to investors anticipating a major correction
 - The faster-than-expected reopening of the economy following vaccinations also shifted the focus to the cyclical sectors that were previously trading at low prices
- In January 2022, the technology sector suffered a setback as the US Federal Reserve raised the benchmark lending rate earlier than expected (due to rising inflation since mid-2021). We expect this slowdown to be temporary as the sector has vast potential
 - The sector's fundamentals are strong and the growing demand for hi-tech superior products and a series of breakthroughs in 5G, cloud computing, AI, self-driving vehicles, and IoT are acting as catalysts
 - The increasing use of digital technology in leading emerging markets, such as Asia, LatAm, Africa and some European countries, are driving the sector's growth

Source: S&P Dow Jones Indices website

Technology Sub-sector Valuations Witnessed Upward Trend During 2021

Technology Sub-sector Valuations – EV/LTM EBITDA through Dec 31, 2021



Software

- As per Gartner, enterprise software spending amounted to US\$605 billion in 2021, up 14.4% y-o-y
 - This increase in spending is largely driven by infrastructure software expenses outpacing application software spending
- Cloud-based software will be responsible for nearly 11% growth in spending expected in 2022
 - By 2025, the cloud market is expected to be twice the size of the non-cloud market

Semiconductor & Semiconductor Equipment

- The semiconductor sector posted a 49% return in 2021 due to
 - Increased demand for highly advanced computer chips, as consumer goods continued to trend towards digitization
 - Persistent shortage of chips caused by pandemic-related shutdowns – this led to higher semiconductor prices
- The sector will also get a boost from a US\$52 billion funding announced by the U.S. gov't. to support domestic chip manufacturing

Hardware, Storage & Peripherals

- With telehealth, remote work, and online learning taking precedence, global spending on devices amounted to ~US\$787 billion in 2021, up almost 13%
 - Investment in PCs and tablets is forecast to increase 8% in 2021, higher than the long-term 2% p.a. growth trend
- The spending on devices is expected to grow by 3.3% and fall 1.2% in 2022 and 2023, driven by enterprises looking to upgrade devices / or invest in multiple devices to facilitate a hybrid work model

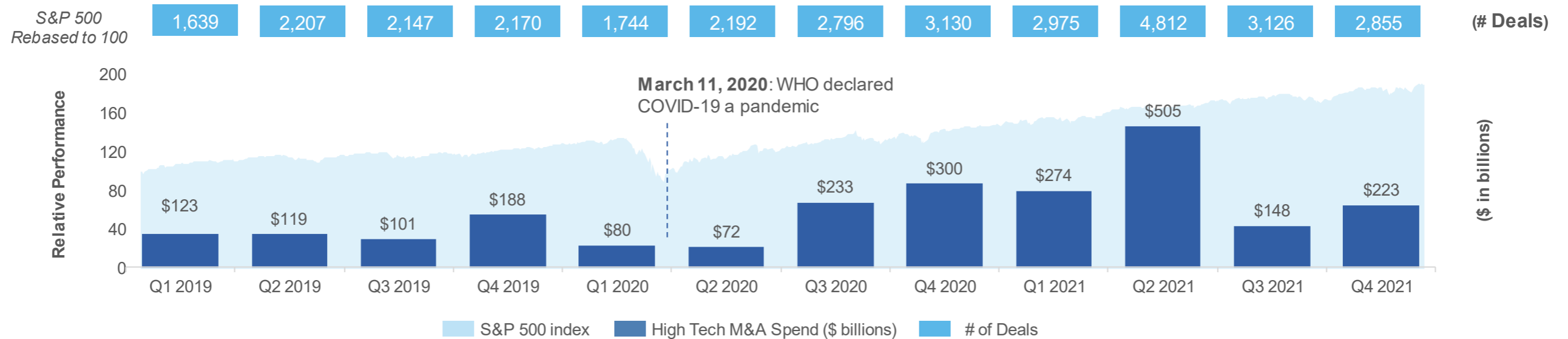
IT Services

- According to a recent Gartner analysis, the spending on IT Services – which includes consulting and managed services – amounted to US\$1.3 trillion in 2021, up 10.7% y-o-y
 - The spending is expected to grow nearly 8% and 9% in 2022 and 2023, respectively
- IT services are a high priority for various organizations as they are key to digital transformation
 - Business and technology consulting spending, specifically, is expected to grow 10% in 2022

Source: S&P Dow Jones Indices website, Gartner, press releases

Technology M&A Deals Thrived in 2021

Global High-technology M&A Deals



- Technology transactions were the dominant driving force in the global M&A market in 2021
 - Investment in digital transformation aimed at supporting the hybrid, remote, and agile working environments led to an increase in demand for the services of technology providers and high M&A activity
- Global technology M&A values exceeded US\$1trillion for the first time in 2021, a 60% increase vs 2020
 - Overall deal volumes in 2021 exceeded the pre-pandemic level with a 21% increase in 2019 and an 8% increase in 2018
 - Technology deals accounted for ~20% of the global transactions market by value and more than 22% by volume
- Software accounted for almost 50% of the worldwide technology sector deals
 - Established technology companies continue to invest heavily in software, particularly as they move to cloud-based, subscription, or enterprise-focused services
 - Non-technology companies are increasingly turning to software acquisitions to accelerate their digital transformation and move into new markets

Source: S&P Dow Jones Indices website, Refinitiv




Major Trends Driving Technology M&A in 2022

Trends Driving M&A in the Technology Sector

Expected Consolidation in Electric Vehicle Market

- Investors see disruption in the global auto industry as a massive, inevitable economic shift and are getting in early by investing in electric vehicle (EV) companies and battery manufacturers to ride the long-term EV wave
 - According to a report by Fortune Business Insights, the global EV market is expected to grow from US\$287 billion in 2021 to US\$1.3 trillion in 2028
- Electrical vehicle stocks accounted for some of the major IPOs and top stock performances in 2021
 - Rivian and Lucid Motors went public in 2021 through SPACs at massive valuations despite not having generated meaningful revenues

Potential SPAC Activities in 2022

-  SigmaSense provides touch screen technology and is planning to apply its system to the EV space in 2022; it will consider a SPAC if it starts generating revenue by 2023
-  China-based PIX Moving that builds self-driving chassis for low-speed autonomous vehicles
-  Lithium-ion battery recycler

- Energy transition will continue to be a theme for technology M&A for some years to come
 - This will boost activity in battery storage technology and vehicle software deals, as they help companies to acquire technology and launch new business models faster than they could on their own
 - A number of large automakers have announced joint ventures to produce electric vehicles and/or critical materials for EV cars
 - The passing of a US\$7.5 billion plan by the U.S. government to expand EV charging technology will further fuel the sector growth

Source : Press Releases

Tapping “Buy Now, Pay Later” (BNPL) Deals

- Globally, spending using the BNPL payment option is expected to reach US\$995 billion by 2026, almost 4x the current figure
 - The BNPL sector has grown significantly, especially since the onset of COVID-19, which accelerated digitization, merchant adoption, and consumer demand
 - This payment option is extremely popular among those under 30s and those with tighter finances. As per Forbes, 36% of those aged 21–25 use BNPL in the U.S.
- Due to growth and interest in the space, there had been a series of mega deals and cross-border acquisitions in the BNPL domain in 2021

Notable BNPL M&As in 2021

 Square acquired 
An Australian BNPL giant, for US\$27 billion in Aug 2021

 PayPal acquired 
A Japanese BNPL platform, for US\$2.73 billion in Sep 2021

 Goldman Sachs acquired 
A home improvement lending platform, for US\$2.23 billion in Sep 2021

- Besides this, BNPL has moved beyond its home turf in consumer e-commerce
 - Various investors are increasingly funding startups that are building BNPL solutions for travel, home services, construction, and healthcare
- The growing BNPL market is largely unregulated and leads to debt accumulation, therefore, scrutiny by financial regulators is bound to happen – this will shift the entire BNPL space, leaving a void in the market for compliant providers
 - Currently, fintech companies hold majority of the market share and capture \$8–10 billion in annual consumer financing revenue
 - Therefore, consolidation will be driven by banks and financial institutions – already compliant with financial regulation – that are looking to leverage fintech technologies to become strong BNPL players in the years to come

Major Trends Driving Technology M&A in 2022

Trends Driving M&A for the Technology Sector

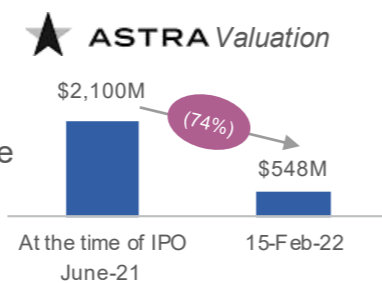
Ongoing Technological Advancements in Space Industry

- Morgan Stanley's space team estimated that the ~US\$350 billion global space industry could grow to ~US\$1 trillion by 2040
 - 2021 saw several breakthroughs in space – human space flights, deep space exploration, and high investment (US\$12.4 billion of private capital in space infrastructure companies)
- There is a growing relevance for space companies tackling climate change
 - Diversity of higher resolution and more frequent space data are enabling new applications to monitor and track objects and activities on earth
 - The push towards decarbonization has led to a significant increase in investment into the sector and will act as a key driver in the M&A surge in 2022

SERAPHIM CAPITAL acquired **ICEYE** **D-ORBIT**

In December 2021, London-listed Seraphim Space Investment Trust acquired ICEYE, a satellite technology company, and D-Orbit, an orbital transport firm, for a combined value of GBP28M

- Nine space companies went public through SPAC mergers in 2021. Almost all suffered a drop in their valuations, making them potential targets for M&A
 - Potential acquirers range from other emerging space companies looking to move up the value chain to large aerospace companies that want to diversify



- Cloud players will accelerate their reach in Space in 2022

aws **Microsoft Azure** **aws** **SERAPHIM CAPITAL** **amazon**

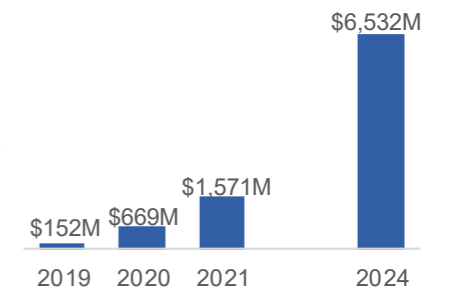
AWS and Microsoft launched their space business unit in 2020. In March 2021, AWS launched a new space startup assistance program in partnership with Seraphim Capital. UK-based venture firm. Amazon is investing over \$10 billion to build a network of over 3,000 satellites for delivering broadband connectivity; it has plans to launch its first Project Kuiper satellites in late 2022.

Source : Press Releases

Hot Gaming Market

- The global gaming market is a US\$200 billion market and is expected to reach a value of \$314 billion by 2027
 - The market received a boost during the pandemic, as people stayed home and played video games
 - Mobile games are ripe for consolidation because they are more accessible than other types of gaming
- The cloud gaming market generated more than twice as much revenues in 2021 than it did in 2020, and more growth is expected
- Investors have taken notice of the surging gaming interest and M&As are being fueled by capital from venture capitalists
 - Since 2015, Tencent has completed 23 gaming deals while Microsoft has agreed to 12 acquisitions

Cloud Gaming Market Revenue Estimates



Major Gaming Acquisitions

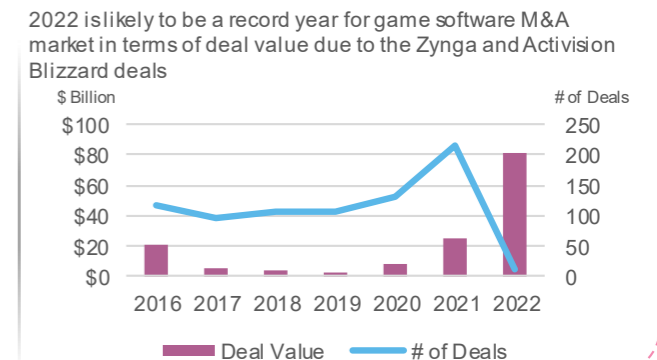
T2 Acquired **zynga**

In January 2022, Take-Two Interactive acquired social game developer Zynga for US\$12.7 billion, the biggest deal in the history of video gaming

Microsoft Acquired **ACTIVISION BLIZZARD**

Microsoft announced that it would acquire Activision Blizzard, its extensive PC, mobile, and platform game titles for US\$68.7 billion

M&A Activity over last few years

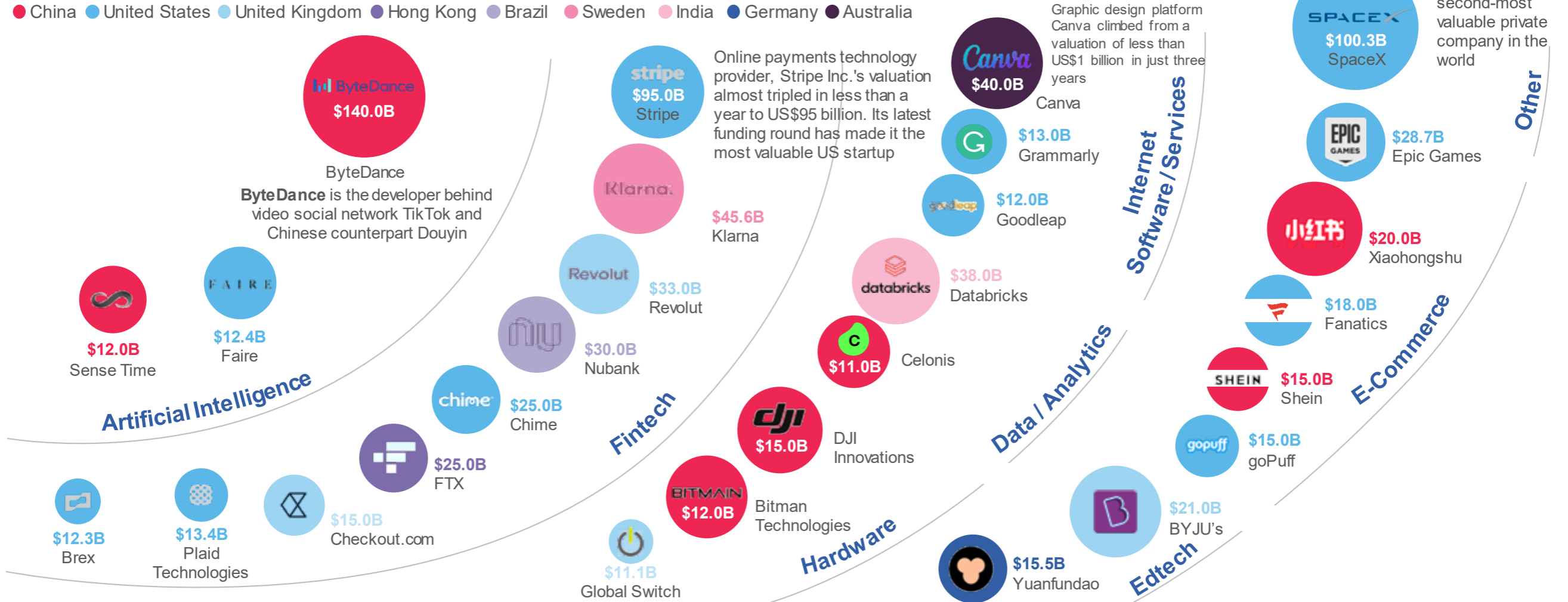


Surge in the number of Technology Unicorns in 2021

25+ Private Companies were Valued at over \$10 Billion in 2021

Since COVID-19 took hold, the technology sector has proved to be resilient and a safe haven for venture capitalists. This has led to the valuation of global technology companies at more than US\$35 trillion, exceeding the US\$20.81 trillion US GDP in 2020

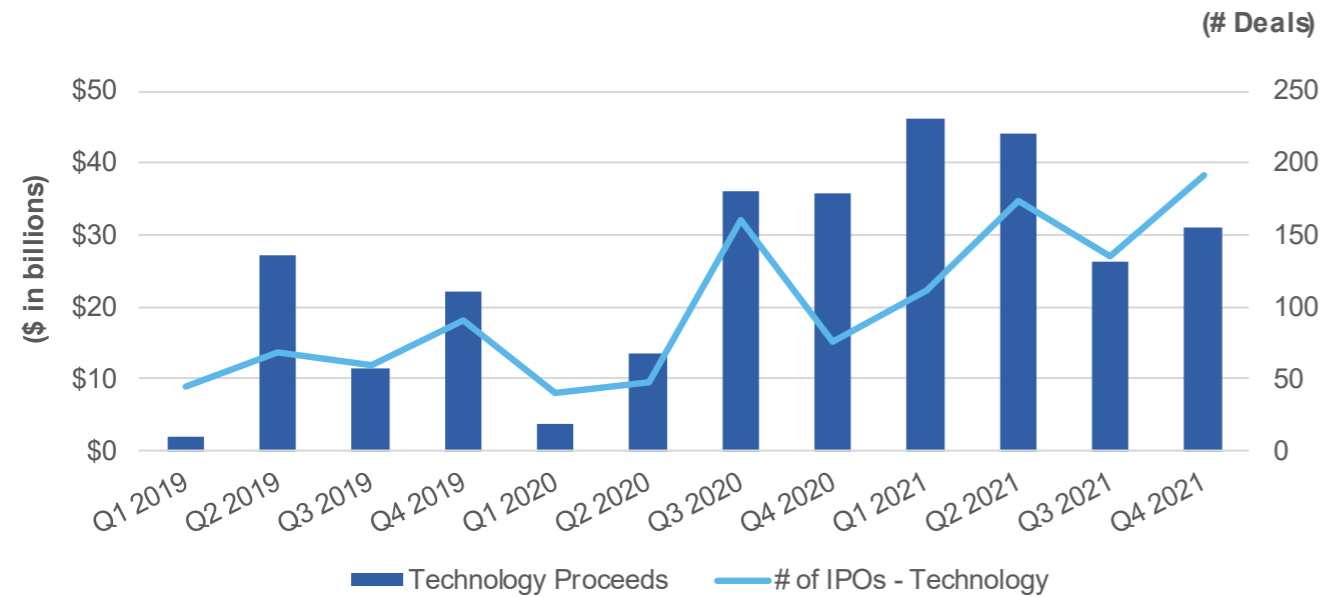
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Source: Visual Capitalist

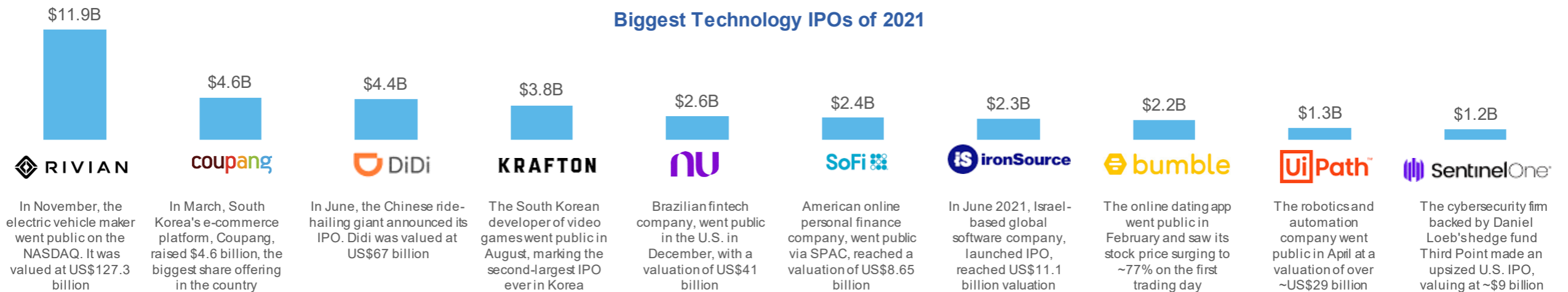
Surge in Technology Listing Activity in 2021

Technology IPO Activity



- Technology represented 26% of all 2021 global IPO activity by number and 33% of proceeds raised
 - Software (social media, e-commerce, gaming and FinTech) accounted for 71% of technology IPOs and 84% of proceeds
 - For the sixth consecutive quarter since Q3 2020, technology generated the highest year-to-date number of deals (611), raising the highest amount in proceeds (US\$147.5 billion)
- Strong global economic growth will continue in 2022 as developed economies still have extra capacity and central banks are expected to raise interest rates gradually, providing a favorable environment for equities
 - ESG will be a key theme in 2022 for IPO candidates and investors alike
 - The technology sector will continue to dominate across regions in 2022. In Asia-Pacific, the emphasis will be on hardware more than software

Biggest Technology IPOs of 2021



Source: EY Global IPO Trends Report, press releases

Major Challenges Faced by Technology Industry

Challenges Faced by Technology Sector

Increased in Regulation for Technology Firms

- Technological developments are rapidly increasing the supply of products and services, thereby disrupting economic and financial systems
 - Microsoft, Apple and Alphabet were among the three biggest contributors to the S&P 500 Index's 2021 gains
 - Apple is now worth more than the GDP of all but four countries
- As big tech continues to grow, governments are taking different approaches to manage their influence, as well as the technologies they own
 - Regulations to tackle technology came on rapidly throughout 2021. With various acts moving through U.S., EU and China, 2022 will definitely be a big year for such legislations
 - However, as technology transcends national borders, only a coordinated global approach to regulate AI, the Internet and data will be truly effective

Supply Shortage in Semiconductor Chips

- Semiconductor supply shortage emerged as a significant challenge for technology companies in 2021 and the problem is likely to persist until 2023
- Besides this, there is a growing demand for microchips
 - According to the Semiconductor Industry Association, the global chip monthly sales grew by ~23.5% Y-o-Y to \$49.7 billion in November 2021
- Supply chain disruptions, in part aggravated by political tensions between the U.S. and China, have led to delays in getting products from manufacturers to the market
- To effectively deal with future (and potentially greater) supply chain challenges, tech companies should build their supply networks with the ability to offer granular visibility across all tiers and levels

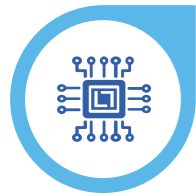
Shortage of Skilled Workforce

- A Gartner survey reveals that talent shortage is the biggest barrier in adopting emerging technologies
 - Around 93% of employers are currently facing a significant skill gap among their IT professionals
- ITC predicts that by 2022, monetary losses from IT skill gap reach \$775 billion worldwide
- The ongoing push toward remote work and the acceleration of hiring plans in 2021 has exacerbated IT talent scarcity, especially for sourcing skills that enable cloud and edge, automation and continuous delivery
- 40% of companies hired tech staff during the pandemic and the demand for digital skills is expected to grow by ~50% across the U.S. and Europe in the next decade

Facilitating Hybrid Work Environment

- Work from home policies have become the norm due to the COVID-19 pandemic
 - According to Gallup, about 2/3rd of U.S. workers who work remotely would like to continue to do so
 - A recent report published by Microsoft stated that over 70% of employees want flexible remote / hybrid work options to be available even after the pandemic
- Infrastructure is the prime need for consistent remote workplace management
 - Such infrastructure requires large investments for acquiring assets that can support, govern, and handle heavy data loads

Factors Affecting Technology Sector



Dealmakers Bullish on Technology M&A in 2022

- In an increasingly competitive environment, tech companies continue to rely on M&A as a powerful means for differentiation
 - The fear of missing out is forcing companies to evaluate deals to future-proof their businesses. According to a new survey by Merger market, this attitude is spurring tech M&A deal volumes and values. This trend is expected to continue in 2022
 - Rise in the number of “transformative deals” that change business and operating models, where traditional industrial or financial services companies are acquiring tech companies to digitize their businesses
 - Besides PE and strategic buyers, increasingly diverse range of investors, with huge amounts of capital to deploy, entered the market in force, including sovereign wealth, hedge and pension funds, and investment banks



Global IT Spending Set to Exceed Pre-pandemic Level

- According to Gartner analysis, worldwide IT spending is projected to reach US\$4.5 trillion in 2022, up 5.1% from 2021
 - Businesses are focusing on multi-year projects in 2022, as companies are moving away from pandemic-induced reactive spending – with business process improvement, digital transformation, and modernization as leading priorities for CIOs
 - With organizations signing more and more deals, IT services spending is expected to reach around one-quarter of the total global IT spend
 - Enterprises are expected to spend more on technology with IT budgets are expected to increase between 6%-15% in the next three to five years



Big Tech Will Cement Their Dominance in Global Economy

- In 2021, Big Tech companies had some of the biggest annual revenue increases ever, despite all the challenges including COVID-19, fluctuating economy and job market, supply chain issues, and semiconductor shortages
 - Apple and Google reported a 33% y-o-y and 40% y-o-y revenue increase in 2021, respectively
 - Big tech is expected to continue growing in 2022 and 2023, unless things drastically change across the economy or the industry

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