Outlook 2023

Technology

SIGNET

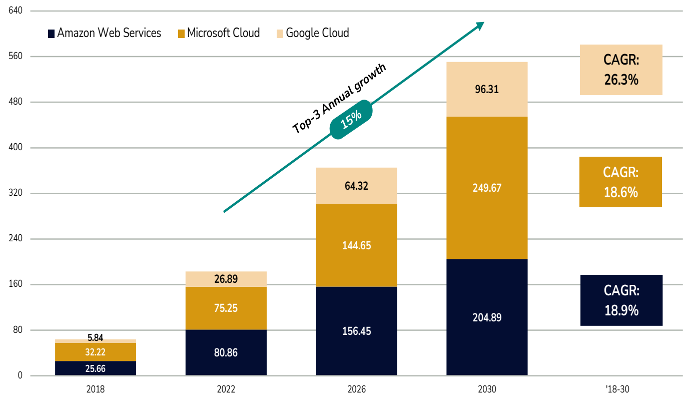
Cloud technology

The most promising innovation in tech

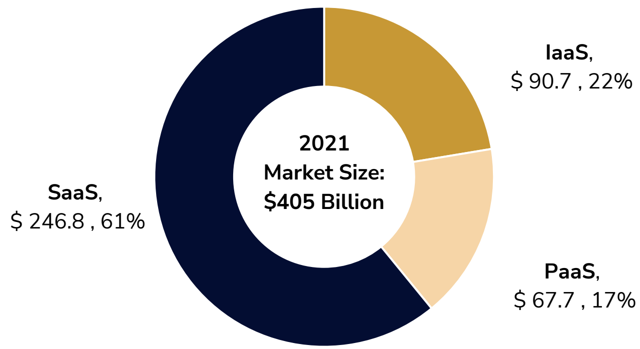
Multiple tailwinds should drive growth over the medium term, following a potential slowdown in 2023. We expect large cloud providers to continue to deliver robust results over the medium term, with consistently strong growth and margin progression.

- After several years of strong growth, especially post-pandemic, growth rates in cloud spending could decelerate in the very short term as companies adjust their spending. We anticipate this slowdown to be short-lived and expect growth to reaccelerate in 2024.
- Cloud penetration remains low (c.20-25%) and has the potential to double from current levels in the next decade. This represents a significant growth opportunity, as increasing usage of data and burgeoning penetration provides a strong and sustainable tailwind.
- The dominance of the three big players **(fig. 1)** could intensify as they increasingly focus on gaining market share and entrenching their respective market positions.
- We expect Amazon to maintain is lead, especially in infrastructure-as-a-service — which constitutes over 20% of the cloud market **(fig. 2)** — as it leverages its strong open-source background. We expect Microsoft, with its enterprise background, to gain market share and Google to remain a distant third (regionalization is not as strong).
- Oracle could be a surprise within cloud given its increasing related investments, but Microsoft should also benefit from its partnership with Oracle.
- We anticipate potential margin compression due to increasing electricity costs and wage inflation, exacerbated by aggressive pricing in pursuit of market share. Ultimately, we expect healthy margin progression trends to resume, as improving data center efficiencies and increasingly complex use cases act as tailwinds.

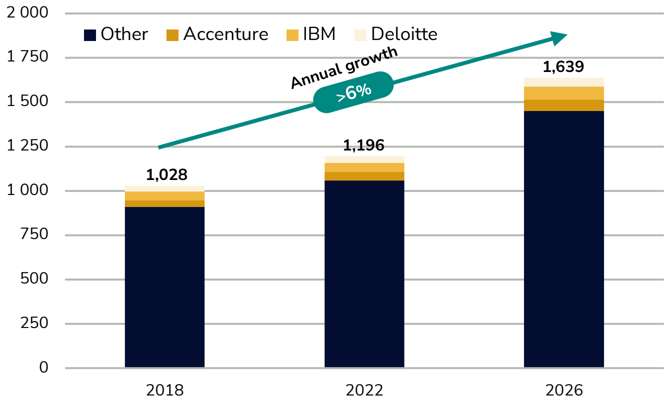
1. Sales of Top-3 Cloud Infrastructure Players, $bn



2. Cloud Spending Market Structure, $bn



3. Worldwide IT Services Market, $bn



IT services — taking you to a cloud

We prefer the larger vendors in IT services, as we believe they're better positioned to gain market share. We're targeting companies that focus on cloud-based solutions, rather than business process outsourcing and/or outdated technologies.

- In our view, digital transformation should remain high on the agenda for CIOs, representing a multiyear tailwind as companies upgrade their systems, with an increasing focus on back office functions/automation.
- Based on our conversations, the digital transformation agenda remains among chief information officers' top priorities. The global IT services market is forecast to attain a 6% CAGR between 2018 and 2026 **(fig 3)** driven by accelerated spending between 2022 and 2026.
- Given ongoing macro uncertainty, we expect that non-critical projects might be delayed, leading to a near-term slowdown in growth. This might vary by subsector, i.e., retail/the consumer may endure a more significant deceleration in growth than the financial services sector.
- This slowdown can also vary by geography. We foresee a steeper slowdown in Europe than in the US or Asia.
- Various ongoing challenges, including availability of talent, wage inflation and employee turnover in the sector represent margin headwinds. The last two years have witnessed robust pricing power by IT service providers.

Chart sources: (1, 2, 3) Bloomberg Intelligence.

Digital data

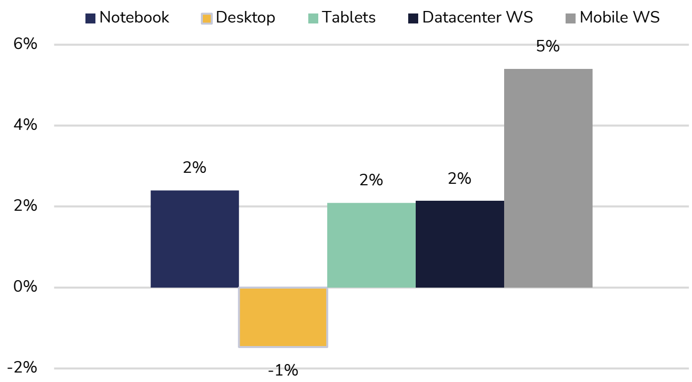
Hardware — devices around us

Given slowing consumer demand and elevated total shipments compared pre-pandemic levels, it is reasonable to maintain a conservative stance on the hardware industry, investing only in the most defensive companies.

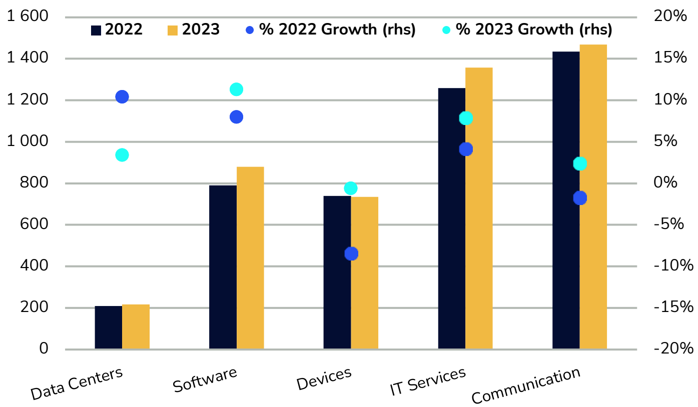
- **Personal computer devices (PCD).** Worldwide personal computer sales were down 15% Y/Y by 4Q22. PC makers shipped 74mm PCs in 3Q22, down 15% from 87mm PCs a year prior. Weakening sales are primarily due to a combination of "cooling demand and uneven supply" in the PC market.
- Further deterioration is expected in 2023 as consumer demand continues to slow and education demand is largely fulfilled, with enterprise demand elongated due to worsening macroeconomic conditions. The combined market for PCs and tablets is forecast to decline by 3% in 2023, before resuming its growth trajectory in 2024. Shortages over the past few years have led to an aggressive shift towards the premium segment.
- The average 2022-2026 forecast shipment CAGR for notebooks, tablets and datacenters WS exceeds 2%, while desktops are expected to lag, with a 2022-2026 shipment CAGR of -1.5% for this product **(fig. 1).**
- **Cloud and data centers.** Big Tech players invested heavily in cloud computing infrastructure during 2022. In 2023, these companies are expected to reduce their spending on the warehouse-sized data centers, filled with cutting-edge computing and communications technologies, that comprise the cloud **(fig. 2).**
- We anticipate server shipment growth to be weaker in 2023 and stay in a range 2.7%-2.9% as the global economic outlook remains moderately negative and companies across most industry sectors adopt more targeted expenditure plans for 2023.
- In the event of an economic slowdown in the US, cloud spending growth could slow from 25-35% to 15-20%. Consequently, we expect software spending (including on cloud infrastructure) to increase by 11% in 2023 **(fig. 3).**

Chart sources: (1) Gartner, (2) Jon Peddie Research, (3) Bloomberg Intelligence.

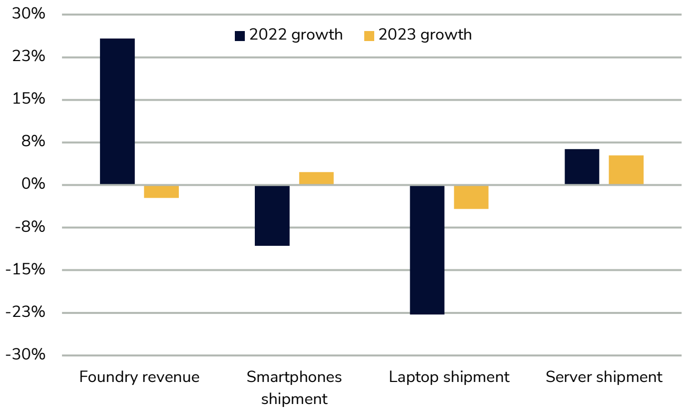
1. PCD Forecast Shipment, 2022-2026 CAGR



2. Worldwide IT Spending, $bn



3. Global Foundry Sales vs. Segment Shipments



Semiconductors — life and chips

Two factors that are exerting significant pressure on the semiconductor industry's 2023 outlook are (1) declining consumer demand for PCs and consumer electronics and (2) inventory adjustments. Despite the long-term attractiveness of semiconductor industry, we maintain a tactically cautious stance for the first half of 2023.

- In 2023, global foundry revenues are expected to decline by 2-3%, due to ongoing inventory adjustments during 1H23, macroeconomic uncertainty affecting consumers' willingness to buy new products and the technological war between the US and China **(fig. 3)**.
- Over the next five years, we forecast an 8% CAGR and expect these revenues to reach $205bn by 2027.
- While the Industrial Internet of Things (IIoT), automotive and other specialized communications semiconductors are likely to maintain relatively stable growth, the growth rate of individual semiconductor companies will vary depending on the contribution of these applications to their respective businesses. As the industry recovers, we anticipate increased demand for applications such as 5G and high-performance computing (HPC), higher silicon content in electronic vehicles (EVs) and cars, coupled with brand and system owners such as Amazon, Microsoft, Google and Apple moving to proprietary chips.
- The enterprise market has been relatively stable, and we don't expect it to decline as much as the consumer market with respect to semiconductor demand. We anticipate weakness during 2023 in the memory market — expecting oversupply to contribute to a decline of up to 16% — and in the NAND flash market, which could see a decline of up to 14%.
- A paramount ongoing consideration is the impact of weaker consumer demand on retail prices. GPU producers have already started reducing their prices to adjust inventory levels, while DRAM and NAND flash manufacturers have curtailed production plans to prevent a significant price correction.

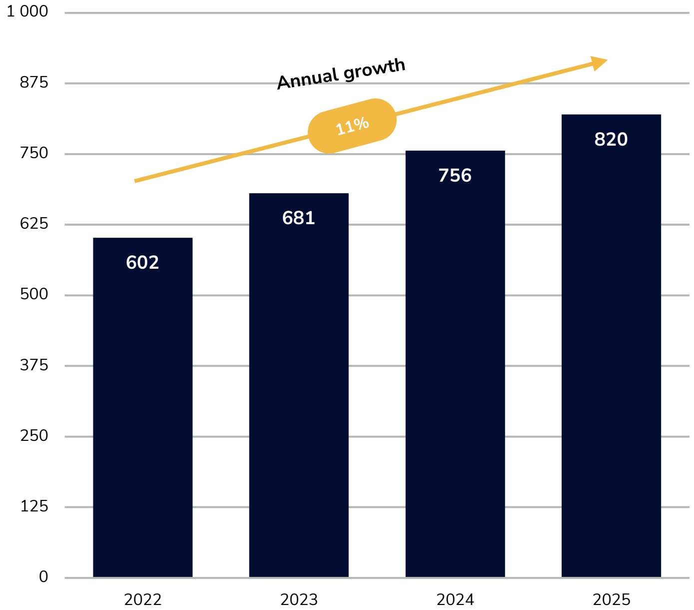
Virtual life
Social networks and digital advertising

Battles in the virtual space

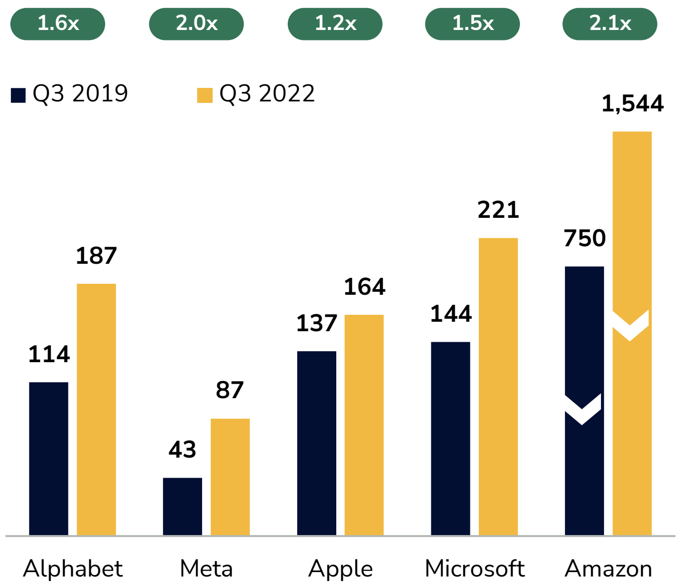
Accelerating capex prompted by lower prices for core equipment that is essential for AI development and margin stabilization arising from layoffs will support Big Tech's market leadership and bolster respective market shares.

- **2022 overview.** The digital ads market grew by c.9% Y/Y, reaching $602bn and exceeding 2019's spend levels by 8.7%. Digital ads accounted for 56% of global ads. Global digital ads spend is forecast to achieve an 11% CAGR by 2025 (**fig. 1**). Subsectors whose growth is expected to outpace the broader market include social ads (+21.4% Y/Y) and search (+16.9% Y/Y).
- **Prices.** Digital ad spend per person is estimated at $584 per internet user for 2022 (+6.47% Y/Y). Prices are expected to rise by 6.3% in 2023 and by 5.7% in 2024.
- **Demand dynamics.** c.30% of major advertisers expect to reduce their ad budgets in 2023, while c.40% expect similar spend levels and c.30% plan to increase spending.
- **Competition dynamics.** The rivalry between Meta and TikTok is set to intensify. Most e-commerce brands are planning to increase their TikTok budgets in 2023, with 85% of brands expecting to hike total ad spend on this platform (vs. 39% for Meta).
- **Margins.** Most providers substantially increased staff count during the pandemic (**fig. 2**) adversely affecting margins. Subsequently, Meta, Amazon and Alphabet have announced layoffs of more than 10k employees each. We expect operating margins to stabilize around current levels, with limited further declines in this metric.
- **Capex.** Gartner Global Communication Services expects market capex to grow by 2.4% in 2023, to $1.5tr (2022: c.3%), due primarily to investments in data centers.
- For 2023, Meta expects to incur capex of c.$34-39bn for investments in data centers and AI, as it seeks to increase its market share and accelerate its growth. Meta's capex cycles, including investments in computational capacity, typically coincide with subdued demand for computing power (**fig. 3**).
- **Regulatory changes.** We anticipate the most significant change in 2023 to relate to data privacy regulations and data restrictions from web browsers on websites that have enabled data-sharing functionality.

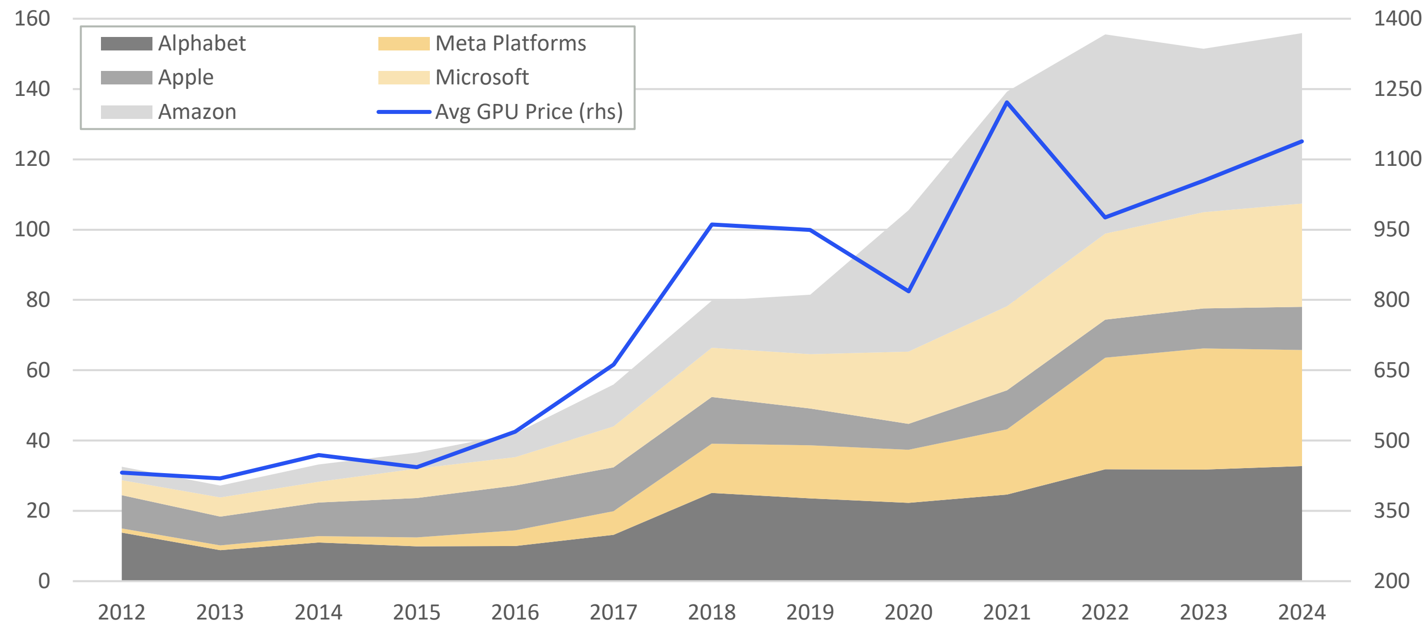
1. Global Digital Ads Spending, $bn



2. Big Tech Number of Employees, '000s



3. Global Technology Players Capex, $bn, and GPU Prices, $



Charts source. (1) Dentsu. (2, 3, 4) Company reports

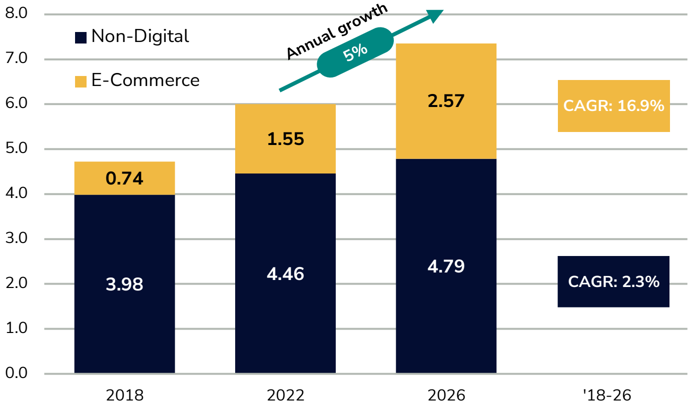
Virtual life
e-Commerce

Focus to shift to strong FCF growth

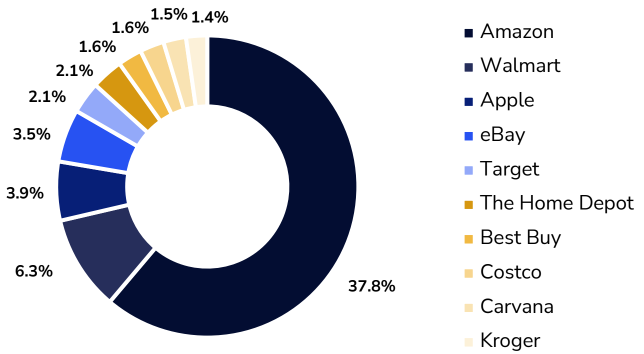
We believe current de-rating reflects significant near term concerns and does not fully reflect medium term opportunities for companies like Amazon. Companies with weak unit economics or highly competitive end markets should be avoided.

- Covid-19 provided a significant boost to e-commerce sales in 2020/1H21 with up to 3-5 years of channel shift happening in a very short time.
- As economies opened in 2H21 leading to consumer expenditure returning to normal level (more on experiences/travel) across categories in combination of opening of stores. This led to sharp slowdown in growth for e-commerce with declining sales in some categories.
- In 2022, higher than expected inflation led to consumer expenditure increase in non-discretionary items as well as higher wage inflation led to pressure on margin.
- Normalization is expected to return in 2023 with e-commerce growing marginally higher than underlying category growth but most of the categories might be closer to saturation in steep channel shift away from stores to online.
- Basket size, average order per customer could continue to increase incrementally.
- In the long term, we do believe in gradual channel shift driven by demography, advance technologies but we expect companies to focus on maximizing FCF growth while balancing growth in developed markets.
- Penetration in Emerging markets remains low which provides opportunity but long-term ROCE is still uncertain.

1. US E-Commerce Market by sales type ($ trln)



2. e-Commerce market structure in the US



Charts source. (1, 2) Dentsu.

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