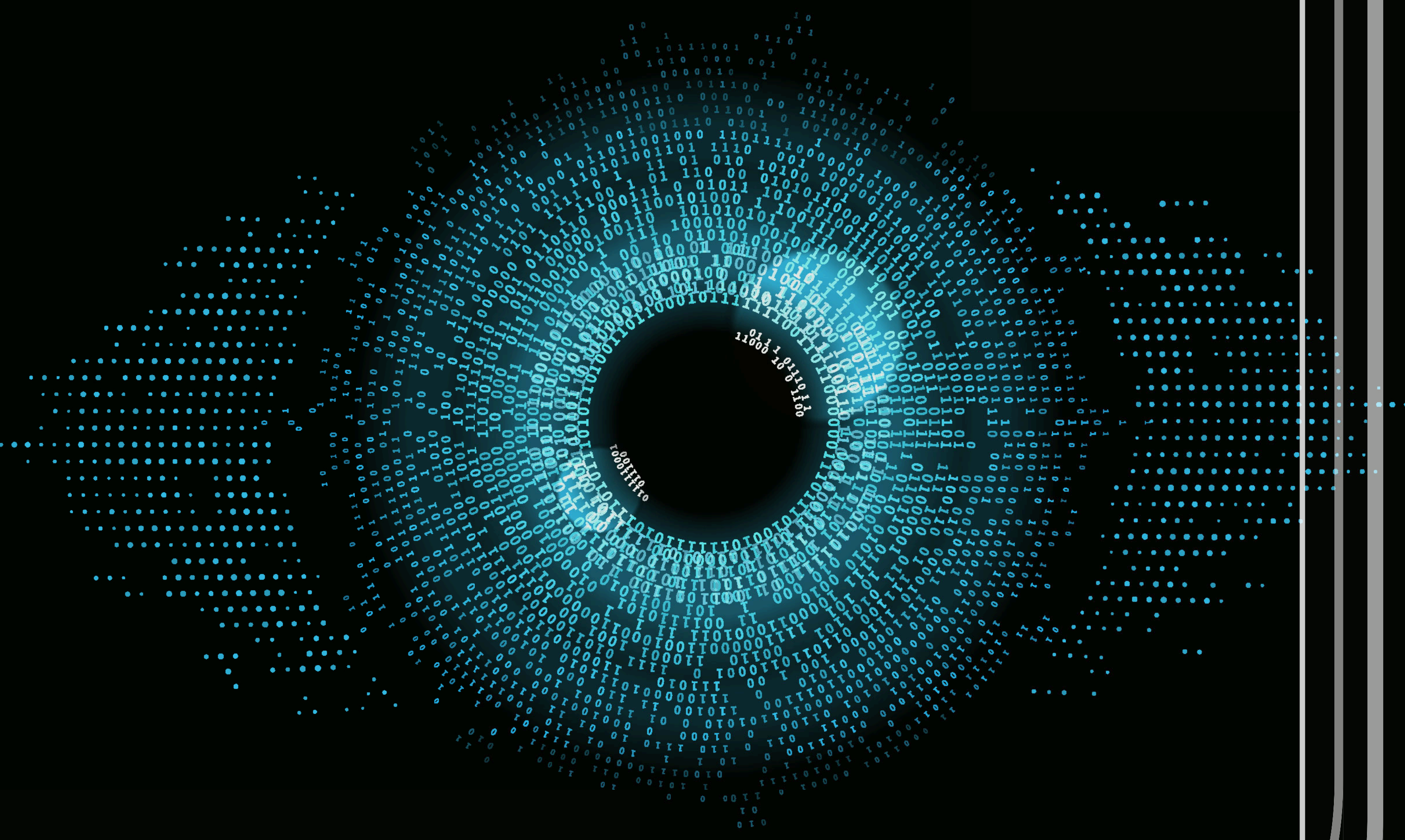
Capital Markets

2024 Top 12 Global TIMT Predictions



EQUITY RESEARCH | DECEMBER 14, 2023

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December 14, 2023

2024 Top 12 Global TIMT Predictions

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Our view: Within this report, our global TIMT analysts outline their top 12 global TIMT predictions for 2024 across Software, Internet, Ad-tech, Info Services, IT Services, Communication Infrastructure & Media. Within each prediction, we note specific companies we believe are best positioned to benefit.

1. **Internet/Software: Cloud optimizations will continue in 2024, though to a lesser degree than 2023** - We asked most companies at our **November TIMT conference** to what degree cloud savings that have been achieved in 2023 would occur again in 2024. Just over half of the companies we spoke with said savings would continue next year when hyper-scalers continue to offer savings in exchange for longer-term contracts – effectively prioritizing LT market share gains over ST revenue growth. Overall, the commentary did not seem incrementally worse than this time last year which we view as a relative positive given our belief that budget scrutiny has seen something of a structural step-up in ’23 and thus, the ’24 comparable should not be as adverse to hyper-scalers’ growth. Net/ net, given company feedback, views of likely consumption increases and strong GenAI positioning, we go into 2024 feeling better about cloud consumption relative to hyper-scaler growth expectations on **AMZN** and **MSFT** in particular, whereas our confidence in **GOOGL** is lower given its smaller scale leaves it somewhat more vulnerable to q/q new customer lumpiness which could at times impede a steadier path to reacceleration. From a software perspective, we continue to believe consumption-oriented companies could show signs of stabilization and potentially acceleration in 2024 on easier comps as we’d highlight **CFLT**, **DDOG**, **ETSC**, **MDB** and **MSFT/Azure** as top consumption software ideas.
2. **Software: Platform consolidation is likely to ramp in 2024 as the big get bigger** - In 2024 we believe customers will look to platform vendors to help them do more with less in times of IT budget uncertainty. To us this could disadvantage point-based software vendors that could be pressured by consolidation. While many vendors have noted elongated deals in the current macro, we’ve heard from vendors that one of the reasons is because these deals are getting larger as budget pressures are leading customers to consolidate spend. Some of our favorite platform consolidators include **CRWD, DDOG, DSGX, DT, GTLB, HUBS, MSFT, MDB, NET, NOW, PANW, VEEV, WDAY** and **ZM**.
3. **Software: M&A activity likely accelerates in 2024 after a down year in 2023** - With the decline in valuations from peak levels, elevated cash balances, and too many sub-scale public and private technology companies, we believe M&A activity is likely to ramp in 2024. In particular, we believe PE-based M&A activity could accelerate in 2024. Within software, **BASE, BOX, DBX, ESTC, FSLY, GEN, MODN, NABL, NTNX, OLO, PD, QLYS, RPD, SMAR, SWI, TDC, TWLO, ZI** and **ZM** as some of the more likely strategic and PE-based M&A targets.
4. **Software: We expect to see early, but minimal signs of GenAI monetization in 2024** - Based on our conversations with public and private software companies, channel partners, and industry experts, most customers are likely to remain in GenAI exploration mode in 2024 and therefore modeling immaterial revenue contribution is necessary conservatism. In our view, only a handful of vendors could see GenAI tailwinds directly or indirectly contribute a few points of growth, including **ADBE, COUR, CRWD, CVO, ESTC, GTLB, MP1, MSFT, MDB, NICE, NOW** and **PME**.
5. **Internet: In the event of a broader consumer slowdown, digital ads may surprisingly outperform** - In our checks, we find most agencies believe businesses should maintain or increase ad spending even in response to slowdowns in demand. By cutting advertising spend when demand falls, companies may preserve margins in the NT, but are magnifying top-line headwinds. While we hear investors are intuitively concerned about ad spend in a slowdown, we believe this will primarily impact brand advertising. While this will hit margins more broadly, we think many companies think the same way the agencies do and prefer to maintain/gain share, at least those with relatively healthy margins/balance sheets. We believe beneficiaries could include **META, AMZN** and **GOOGL**.
6. **Internet: Amazon ads are going everywhere** - We think Amazon ad demand is outpacing supply, and thus it must seek non-Amazon outside channels. Our checks indicate sellers are... (***cont'd on pg 2***)

...spending up to 30%+ of revenue on AMZN ads, which we view as indicative of AMZN running out of on-platform ad load. As such, we expect **AMZN** to continue to explore any and all 3p ad channels where it can drive marginal traffic and conversion where we believe **PINS** is a notable example which could benefit.

7. Ad-tech: STEM overruns marketing - We've seen a multi-year trend towards advertising and marketing optimization. Most notable has been supply path optimization or advertisers trying to bring clarity to their cost structure and make sure those receiving value in a transaction are creating value. While these trends around cost control and spend consolidation will continue, the next stage of optimization has been around performance, and in order to optimize performance we need data that can be attributable to KPIs. We need to focus on who is providing the data that enables advertisers to spend more efficiently. The two names that we would highlight that are on the leading edge of data are **TTD** with its AI focused Kokai platform and **DV** for third-party ad verification with a growing emphasis on performance.

8. Info Services: Synthetic data/GenAI garners interest, but macro/rates likely dominates - We expect GenAI-driven products and features to roll out in 2024, but material monetization is likely in 2025 and beyond. We expect GenAI to improve content discovery, driving greater cross-selling and upselling of features/functionality. We believe companies with unstructured, proprietary, and exhaustive datasets are best positioned to benefit from GenAI. Accordingly, we believe **MCO, VRSK,** and **SPGI** are best positioned.

9. IT Services: AI/GenAI have "technology prerequisites" to drive demand - AI/GenAI offer both opportunities and threats to the IT Services sector, which we break down into two views: 1) "technology prerequisites" are required to fully achieve the benefits of what AI/GenAI offers and will drive incremental & derivative demand; and 2) businesses will have to self-cannibalize segments of their operations, specifically in digital CX and content moderation, in order to successfully pivot to a long-term viable growth model. We believe **ACN**, in our coverage universe, is the best positioned to help clients migrate to the cloud and organize aggregate data assets.

10. Communication Infrastructure: Key trends for 2024 - In 2024, we expect a) AI tailwinds should benefit datacenters; b) a focus on core business segments coupled with 2H reacceleration of US leasing could benefit towers; c) stabilizing rates improve the financial profile of Comm Infra stocks. 1) Hyper-scalers are deploying LLMs near cloud zones, while GPU-as-a-Service providers are expanding to varied locations. 2) Meanwhile, AI's physical specifications will affect network configuration and drive bandwidth connections. 3) Power constraints could drive greater scarcity and benefit datacenter pricing. 4) Stabilizing interest rates could benefit REITs. 5) Stocks in our opinion that stand to benefit include **AMT, CCI, CLNX, DLR, EQIX, GDS, IRM,** and **NEXTDC**.

11. Canadian Telecommunications & Media: Key ingredients in place for a much better 2024 - After a challenging 2023, we expect a better alignment of interest rates and fundamentals including: 1) a disciplined competitive environment despite a strengthening Quebecor; 2) an unusually benign year for regulatory risk; 3) the realization of cost-efficiencies with a focus on lowering the cost to serve; and 4) long-awaited progress on balance sheet de-levering. With above-average NAV growth and exposure to wireless, our favorite telecom names are **RCI.B** and **T**. Within Canadian media, our favorite names are **FORA** and **CGX**.

12. European Internet: Growth inflection point - Internet retailers' and food delivery companies' top-line performance this year has been negatively impacted by normalising online penetration and less competitive propositions, for the sake of profitability. Going forward, we expect their growth momentum to improve, supported by increased investments in prices, marketing and service. We believe evidence of an inflection point, in terms of growth, should drive a re-rating for these companies from their trough. We believe **ZAL** and **DHER** are best-positioned.

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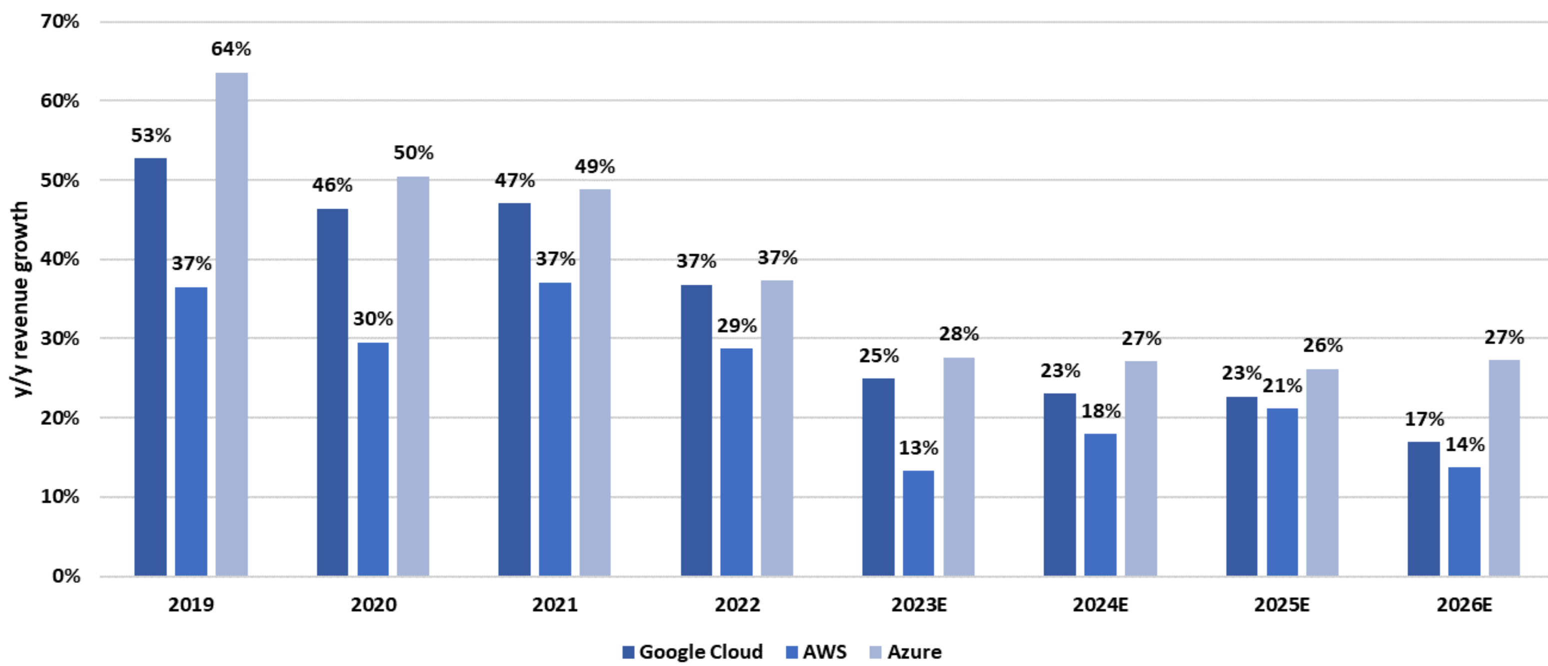
Internet/Software: Cloud optimizations will continue in 2024, though to a lesser degree than 2023

- Based on company feedback at our TIMT conference in November, we think that 2024 will continue to see cloud optimizations, though at a lower rate than in 2023.
- A bit over half of the companies we spoke with noted that savings can and would continue, though to us, the commentary did not seem incrementally worse than in '23. Companies pointed to two primary drivers of savings:
  - Hyper-scalers continuing to offer savings in exchange for longer-term contracts where the view is cloud providers are prioritizing LT market share over ST revenue growth.
  - Companies are looking more closely at areas of further efficiency and increasingly scrutinizing their cloud spending where there are savings opportunities going into next year.
- We believe budgets are facing a new structural level of scrutiny that stepped up in '23, however, some commented this has been common practice, even pre-dating the past year's optimization.
- Going into 2024, we think **AMZN** and **MSFT** are better positioned than **GOOGL** on views of likely consumption increases and strong GenAI positioning vs. GOOGL's smaller scale and larger exposure to lumpiness in q/q customer adds.
- From a software perspective, we continue to believe consumption-oriented companies could show signs of stabilization and potentially acceleration in 2024 on easier comps as we'd highlight **CFLT, DDOG, ETSC**, **MDB** and **MSFT/Azure** as top consumption software ideas.



Source: Company reports, Factset estimates, RBC Capital Markets

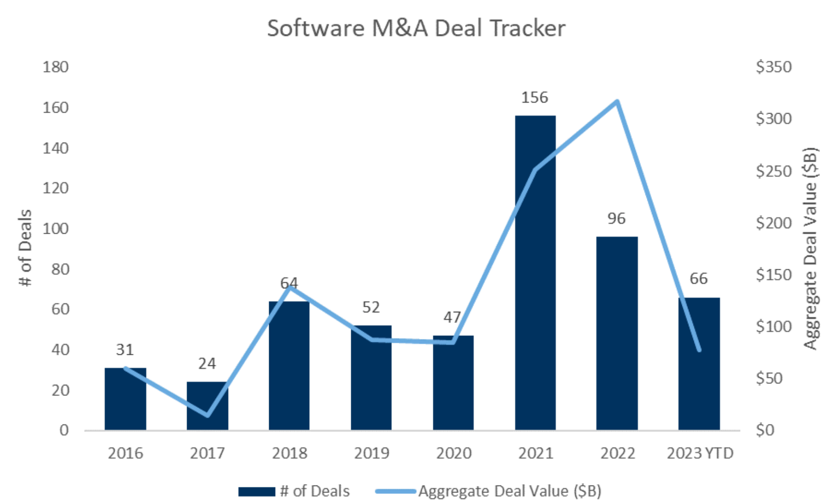
Software: Platform consolidation is likely to ramp in 2024 as the big get bigger

- **True platforms win**: In 2024 we believe customers will look to platform vendors (ideally a single SaaS code stack) to help them do more with less in times of IT budget uncertainty. To us this could disadvantage point-based software vendors that could be pressured by consolidation. While many vendors have noted elongated deals in the current macro, we've heard from vendors that one of the reasons is because these deals are getting larger as budget pressures are leading customers to consolidate spend.
- **Why platforms?** The idea of a platform is at times over utilized, which has resulted in the term being diluted. We believe the best platforms create long-term go-to-market efficiencies powering land and expand flywheels to maximize the potential of the companies' install base. The go-to-market efficiencies as well as R&D efficiencies typically come from a common technology backbone with adjacent products building on a common foundation allowing for interoperability and highlighting the advantage customers gain by consolidating spend on the platform.
- **GenAI could also cause additional consolidation:** As large datasets around GenAI continue to grow (and consolidate), we think customers could increasingly look to consolidate GenAI spending around software platforms as well as hyper-scalers as we've heard foundational GenAI models cost upwards of $500 million to build/maintain.
- **Our favorite platform consolidators:**
    - **Cloudflare**: Their software stack, edge network and innovation engine position them well to consolidate "connectivity" spend.
    - **Crowdstrike**: Their cloud-based platform helps them consolidate workload and cloud security spend.
    - **Datadog**: Their cloud-based platform helps them consolidate observability spend in a crowded market.
    - **Descartes:** Their global logistics network helps position them to consolidate the supply chain execution market.
    - **Dynatrace**: Their enterprise focus & pricing helps them consolidate observability spend in a crowded market.
    - **GitLab**: We continue to like their opportunity to consolidate fragmented DevSecOps spending.
    - **HubSpot**: Through their cloud-based customer service and marketing tech stack, GenAI innovation, and extensive partner network.
    - **Microsoft**: Their deep and trusted relationships with enterprises could allow them to consolidate spend across some of the largest software markets, including public cloud, collaboration, developer tools, security, and hyper-automation.
    - **MongoDB**: Their developer relationships allow them to consolidate the NoSQL database market.
    - **Palo Alto Networks**: Their hybrid architecture has given them a natural ability to consolidate enterprise security spending.
    - **ServiceNow**: The platform of platforms for workflow and automation.
    - **Veeva:** Their cloud-based life sciences software suite and data products position them well to maintain market leadership.
    - **Workday:** Their ability to consolidate back office HCM and financial management spend.
    - **Zoom:** Their ability to expand beyond video conferencing software to adjacencies with a substantial customer base.

Source: RBC Capital Markets, company reports

Software: M&A activity likely accelerates in 2024 after a down year in 2023

- **Following a down year in 2023 for deals, we believe software M&A activity accelerates in 2024**: With the decline in valuations from peak levels, elevated cash balances, and too many sub-scale public and private technology companies, we believe M&A activity is likely to ramp in 2024. *Note: comments around M&A are based on our expertise in the technology sector; we do not rely on any information that is not publicly available.*
- **Vendors that could increase M&A activity**: We believe vendors with large cash balances, high margins, and/or slowing growth could increase their M&A activity in 2024. Serial acquirers such as **Adobe, CGI, Constellation Software**, **Descartes**, Hyper-scalers, **IBM, Oracle** (not covered), **Palo Alto Networks, Salesforce, SAP** (not covered), and **Zoom** among others are well capitalized and have cash available to deploy on acquisitions.
- **The short-list of companies within our global TIMT coverage we believe could be M&A targets:** Based on our prior research and comment on potential M&A ideas we'd include **BASE, BOX, DBX, ESTC, FSLY, GEN, MODN, NABL, NTNX, OLO, PD, QLYS, RPD, SMAR, SWI, TDC, TWLO, ZI** and **ZM** as some of the more likely M&A targets.
- **Slowing growth becomes a catalyst**: Certain end markets have faced a material slowdown in growth since 2021, which increases the likelihood of consolidation in those markets.
- **Sub-scale vendors likely struggle**: Smaller vendors may look to combine with larger players in order to extract economies of scale to make new investments in areas like GenAI. Additionally, privates may consider selling if they are having trouble securing financing, particularly if growth slowed from prior levels and they are not generating sufficient cash to sustain their operations.
- **The role of private equity in technology likely increases**: 1) PE acts as a driver of consolidation as for every portfolio company, there are likely 2-3 add-on investments/acquisitions; 2) PE-owned companies are often pitched as the best governance model (ability to act/change quickly) vs public, family, or VC-owned companies; and 3) PE is the most likely exit path for private companies vs strategic M&A or the public markets. With that in mind, we continue to monitor how increasing regulatory hurdles could dampen M&A activity (recall, regulators were reportedly examining Thoma Bravo's acquisitions in Identity security).



Source: RBC Capital Markets, company reports, FactSet

Software: We expect to see early, but minimal signs of GenAI monetization in 2024

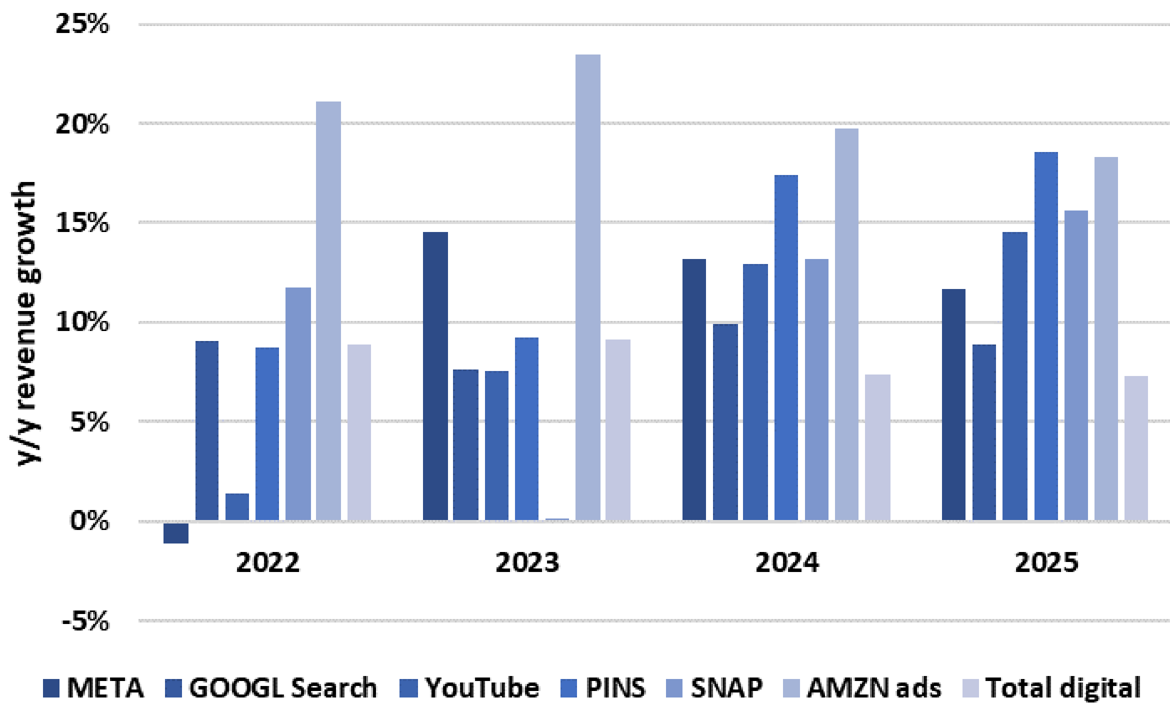
- **Outside of Microsoft, GenAI-related revenue is likely to be de-minimis in 2024 for most software companies:** Based on our conversations with public and private software companies, channel partners, and industry experts, most customers are likely to remain in GenAI exploration mode in 2024 and therefore modeling immaterial revenue contribution is necessary conservatism. In our view, only a handful of vendors could see GenAI tailwinds directly or indirectly contribute a few points of growth, including **ADBE, COUR, CRWD, CVO, ESTC, GTLB, MP1, MSFT, MDB, NICE, NOW** and **PME**.
- **Regardless, identifying early signs of GenAI monetization will be top of mind for investors:** While revenue is likely immaterial in 2024, investors should look for early indications of monetization (e.g., feedback on value of features/products in early production or beta), as well as continue to scrutinize product (and monetization) roadmaps.
  - **Direct monetization** comes in three forms: 1) when companies charge explicitly for GenAI-powered products and features (e.g., Microsoft Copilots and GitHub Copilot); 2) when GenAI-powered features are gated by a paywall or premium tier (ultimately driving better conversions/upgrades); and 3) charging on a usage basis for GenAI-powered features (directly aligning customer value to costs).
  - **Indirect monetization** is when GenAI drives more usage or better retention of a platform. In some cases, such as MongoDB Atlas and Microsoft Azure, this comes in the form of higher consumption in support of new GenAI workloads. In other cases, such as Zoom One and Workday, this comes in the form of embedding GenAI across the portfolio for paid customers (instead of up charging for GenAI features), in order to improve win rates versus competitors and drive platform stickiness.
- **There is no "right" path to monetization, in our view**: The ability to monetize GenAI, both directly and indirectly, depends on the product/feature, how customers use it, and how differentiated the product is (i.e., does the vendor own unique data that in combination with GenAI unlocks a solution that cannot be easily replicated by competitors). In addition, we expect companies to use a mix of these strategies. For example, we expect features like semantic search to effectively become a requirement for all software vendors, while other more advanced features may more easily drive direct monetization. A novel approach we would highlight which includes elements of both direct and indirect monetization is Workday's approach – consumption with limits.
- **On the other hand, we believe there are companies where adopting GenAI is tablestakes:** As a result, we believe it will be difficult to monetize the technology. For example, **BOX** and **DBX** are leveraging GenAI to make their platforms more valuable, but we expect monetization to be difficult, especially with Microsoft's presence in the space.
- **In summary**: GenAI is a topic we have written about at length (see <u>here</u> for our recent GenAI handbook and <u>here</u> for our GenAI primer), and we believe generative AI is a seismic change in the technological landscape. We believe investors may be overestimating the short-term impacts but underestimating the long-term impacts of GenAI.

Source: RBC Capital Markets, company reports

Internet: In the event of a broader consumer slowdown, digital ads may surprisingly outperform

- **If and as the consumer slows down, we believe an important way to mitigate the revenue impact is through performance advertising.**
  - In our checks, we consistently find that most agencies believe businesses should maintain or increase ad spending even in response to slowdowns in demand.
  - By cutting advertising spend when demand falls, companies may preserve margins in the near term, but are magnifying top-line headwinds. While we hear investors are intuitively concerned about ad spend in a slowdown, we believe this will primarily impact brand advertising.
  - While this will hit margins more broadly, we think many companies think the same way the agencies do and prefer to maintain/gain share, at least those with relatively healthy margins/balance sheets.
  - We believe beneficiaries could include **META**, **AMZN**, and **GOOGL.**

2024 appears to be setting up for some deceleration driven by META and AMZN ads

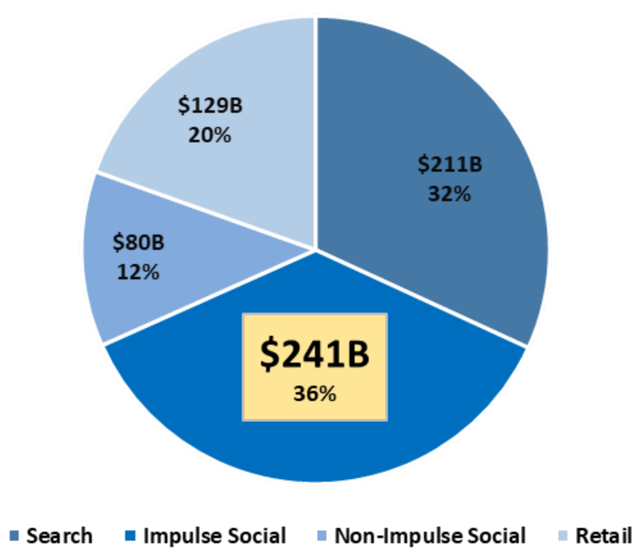


Source: GroupM, Factset estimates, RBC Capital Markets

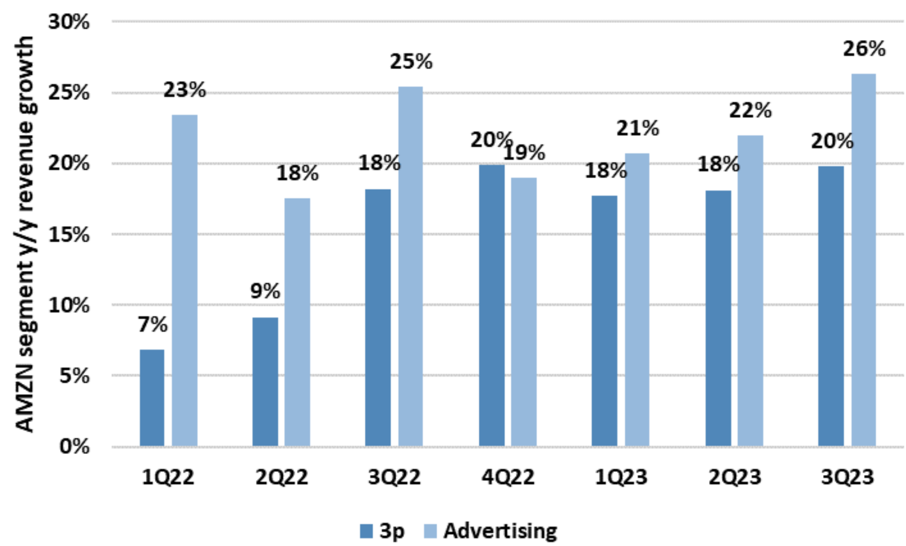
Internet: Amazon ads are going everywhere

- **We think Amazon ad demand is outpacing supply, and thus it must seek non-Amazon outside channels**
  - Our checks indicate sellers are spending up to 30%+ of revenue on **AMZN** ads, which we view as indicative of **AMZN** running out of on-platform ad load.
  - As such, we expect **AMZN** to continue to explore any and all 3p ad channels where it can drive marginal traffic and conversion where we believe **PINS** is a notable example which could benefit (see our recent upgrade here).
  - We believe this reflects a shift by intent-oriented buying experiences (like Google or Amazon) to try and sell more into impulse-oriented platforms (like **META**, **SNAP** or **PINS**).
  - With ads on partner sites like **PINS**, Buzzfeed, Hearst Newspapers, Ziff Davis brands, etc. and partnerships with **SNAP/META** to bring a more seamless in-app shopping experience, we think 3p sellers will be able to productively spend additional ad budget, while also potentially driving some margin savings by mix shifting marketing spend from itself onto 3p advertisers.

2024 Digital Advertising TAM



AMZN's ad business has been noticeably outgrowing 3p seller revenue



Source: GroupM, Factset estimates, RBC Capital Markets

Ad-tech: STEM overruns marketing

- **The art of marketing gets a data overhaul:** We've seen a multi-year trend towards advertising and marketing optimization. Most notable has been supply path optimization or advertisers trying to bring clarity to their cost structure and make sure those receiving value in a transaction are creating value. While these trends around cost control and spend consolidation will continue, the next stage of optimization has been around performance, and in order to optimize performance we need data that can be attributable to KPIs.
- **Our favorite way to play the performance optimization trend:** We need to focus on who is providing the data that enables advertisers to spend more efficiently. The two names that we would highlight that are on the leading edge of data are **TTD** with its AI focused Kokai platform and **DV** for third-party ad verification with a growing emphasis on performance.
- **What are the numbers:** In a recent programmatic media supply chain transparency study, the association of national advertisers (ANA) took a deeper look at the issue. The key finding was that for every dollar spent by advertisers on a DSP, only 36 cents reaches the consumer. When looking at the rest of the dollar, 29 cents goes to transaction costs or DSP and SSP fees, while 35 cents is loss of media productivity costs. Essentially, more money is wasted in the eco-system than is paid to DSPs and SSPs with the ANA concluding there are $22B in potential efficiency gains.
- **The secular drivers:** The two big themes in ad-tech have been CTV and retail media, both of which relate to a growing emphasis on data driven advertising. Surprisingly to some investors, retail media has grown faster than CTV in recent years highlighting the importance of attribution. Retail media allows for advertisements to be attributable to sales both online and in store as well as creating sponsored search opportunities and could be a key to unlocking long-term CTV CPM support. CTV is a great format for reach and attention, but is top of funnel; we feel data is key to proving out the differentiated value of CTV targeting.
- **Where GenAI comes into play:** GenAI is part of a growing challenge in the advertising market. Particularly the proliferation of made for advertising (MFA) content. In the same ANA study referenced above they saw that 21% of impressions and 15% of ad spend was spent on MFA content. Between the ability to generate content and images, entire websites can be created faster than ever creating content that is specifically designed for pulling in advertising dollars despite low engagement and targeting. This is significantly lengthening the long-tail of inventory and further emphasizes the importance of premium data backed content. On the other side, personalized marketing is seeing growing interest due to the ability to generate more creative content efficiently. For this to be effective, it will require data for better targeting and attribution as A/B testing becomes A to Z testing. Long-term, truly personalized marketing on a one-to-one basis would increase CPMs but also take rates due to data utilization.
- **Macro?** When you say optimization in tech, the first thought for most is cloud spend optimization. We think that ad spend optimization has some similarities. Both were trends that were triggered following the bullish spending environment of 2021, but the challenging macro in '22 and '23 accelerated the trends beyond an organic rate. That said, regardless if the environment gets better or worse in '24, advertisers are not going to give up the efficiency gains they worked for over the past two years. While spending will increase, we feel that the focus on utilizing data to create attributable ROAS will continue which could create a long-term bifurcation in CPMs that would be widened further if Google removes cookies.

Source: RBC Capital Markets, "ANA Programmatic Media Supply Chain Transparency Study: Complete Report." ANA, 12/5/23

Info Services: Synthetic data/GenAI garners interest, but macro/rates likely dominates

- **GenAI is evolutionary near-term; Revolutionary longer-term:** We expect GenAI-driven products and features to roll out in 2024, but material monetization is likely in 2025 and beyond. We expect GenAI to improve content discovery, driving greater cross-selling and upselling of features/functionality. We believe companies with unstructured, proprietary, and exhaustive datasets are best positioned to benefit from GenAI. Accordingly, we believe **MCO**, **VRSK**, and **SPGI** are best positioned.
  - We expect GenAI to require material investments in the near term but help improve developer productivity and accelerate innovation. However, we remain skeptical of material cost savings and margin expansion potential, similar to the elusive Cloud savings.
- **Synthetic data disruption potential:** Information Services can leverage their real-world data, domain expertise, and technology leadership to generate synthetic data for training AI/ML models. However, we monitor the potential for synthetic data to replace real-world data in production over the longer term.
  - A synthetic dataset has the same mathematical properties and general patterns as a real dataset, which it represents without containing or revealing underlying data. Gartner estimates that ~60% of data used in AI and analytics projects will be synthetically generated by 2024. Synthetic data can: 1) remove bottlenecks in workflows (improving the ability to migrate data between parts of organizations); 2) complement a dataset that is lacking full data; and 3) supplement datasets that are too costly.
- **Macro and rates likely steal the show in 2024:**
  - With rates rolling over, we expect the recent rally in the rate-sensitive stocks, namely rating agencies and credit bureaus/ FICO, to be sustained in 2024. In addition, given the slowing macro, defensive stocks with company-specific tailwinds, such as Verisk, remain well positioned. **Our top picks in Information Services are SPGI, MCO** and **VRSK.**
  - **Monitoring downside risk:** Muted IT budgets/spending, lengthening sales cycles, tightening consumer lending, further decline in hiring, higher unemployment, and decline in net new small businesses. In addition, we expect normalized price increases in 2024 after elevated pricing in 2023, which will likely weigh on revenue growth. Lastly, we monitor for elevated expectations for a mortgage rebound and issuance recovery. Positively, secular trends, cross-sell/up-sell, and share gains should help to offset the macro headwinds.
  - **Lower rates likely support higher valuations; monitoring levered/shorted stocks:** Most Info Services quality stocks are expensive compared to historical valuations. While lower rates could support higher multiples, we expect most of the stock returns from earnings growth. We monitor if the inexpensive stocks with high leverage and short interest can continue to squeeze higher.
  - **Taming margin expectations:** Cyclical volume tailwinds, cost-takeout initiatives, and moderating inflation bode well for margin expansion; however, we monitor for increased investments, incentives/commissions reset, and normalized pricing.
  - **Capital allocation priorities shifting back to M&A:** Although companies with leverage >3x will likely focus on deleveraging, we expect **CSGP, CTAS, ROL, VRSK, SPGI, MCO, FDS, PAYX**, and **FA** to prioritize tuck-in and/or larger acquisitions.

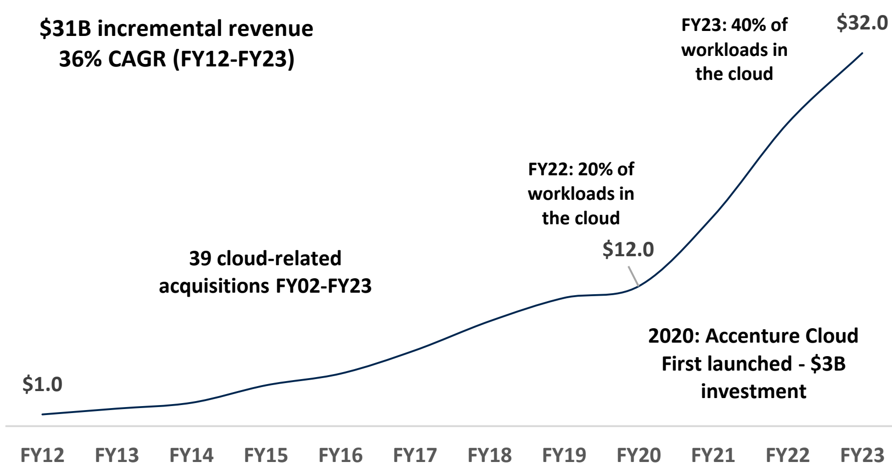
Source: RBC Capital Markets, Gartner Press Release, August 1, 2023 - Gartner Identifies Top Trends Shaping the Future of Data Science and Machine Learning

IT Services: AI/GenAI have "technology prerequisites" to drive demand

- **AI/GenAI offer both opportunities and threats to the IT Services sector, which we break down into two views**: 1) "technology prerequisites" are required to fully achieve the benefits of what AI/GenAI offers and will drive incremental & derivative demand; and 2) businesses will have to self-cannibalize segments of their operations, specifically in digital CX and content moderation, in order to successfully pivot to a long-term viable growth model.
- Prerequisites, in our opinion, include the correct infrastructure on which skilled talent can build full-stack solutions.
  - Correct infrastructure is a "modern data foundation as part of the enterprise digital core" (using ACN's terminology), which includes an **enterprise-wide data platform** and **cloud-based infrastructure.**
  - Data must be **domain-specific, curated, cross-functional** and **shared** throughout the organization.

- **We believe ACN, in our coverage universe, is the best positioned to help clients migrate to the cloud and organize aggregate data assets.**
  - **ACN** dedicating $3B over 3 years to Data & AI investments and generated $300M in GenAI revenues in FY23 from ~300 client projects.
  - Looking back at **ACN's** cloud-journey could be a precursor to its potential AI/GenAI revenue growth.
  - **ACN** made a similar $3B cloud investment in FY20, when 20% of workloads in the industry were already in the cloud & increased revenues @ scale ~2.7x to $32B in FY23.
  - We believe **ACN** is much earlier in catching the AI wave vs. the Cloud and could prove material as GenAI is forecast to be a $1.3T market by 2032.

ACN's Cloud revenues FY12-FY23 ($B)



Source: Company data, Bloomberg, RBC Capital Markets estimates

Communication Infrastructure: AI advancements, power supply constraints, macros and more

AI advancements, power constraints, economic factors benefitting the REITs, core business focus for Towercos, and new technologies reshaping the landscape of network configuration for fiber and datacenters.

- **AI and network configuration:** LLMs developed by the hyperscalers are mostly being deployed at or near existing cloud availability zones or campus clusters. In the case of GPU-as-a-Service providers, LLMs are being deployed across a more varied set of locations, incl. Tier 2 & remote areas. AI inferencing topologies are still evolving; locations range from far-edge/endpoints to smaller deployments at network PoPs or medium-sized datacenters in smaller markets, depending on the use case. The physical specifications of AI, including retrofitting and power densities, will have implications for network configuration, particularly in relation to fiber and datacenters.
- **Power supply constraints:** Thus far in 2023, we estimate AI has provided a ~50% tailwind to hyperscale demand for datacenter capacity. Energy supply will be a key variable determining the velocity of when this demand can be met. Constraints on power supply could lead to shifts in markets, with some builds due to AI-oriented builds. Data center inventory constraints could lead to higher pricing.
- **Macro-economic factors:** With interest rates stabilizing at elevated levels and prospects of lower rates, we believe Real Estate Investment Trusts (REITs) could benefit.
- **Focus on core businesses for Towercos**: Companies like **AMT**, **CCI**, and **CLNX** are expected to lose or assess the disposition of non-core markets, leading to an increased focus on their core businesses. There could be a reacceleration in US tower leasing in 2H24 and beyond.
- **Increased power densities:** The power density of AI and High-Performance Computing (HPC) racks is expected to increase from 40 kW in 2023 to 60-80 kW in 2024, and further to 100-180 kW in 2025.
- **Cooling and retrofitting:** There will be an increased focus on cooling to the chip and retrofitting for older facilities. Existing datacenter designs have kept up with power density requirements through localized cooling techniques. Liquid cooling solutions to enhance rack densities needed for Gen AI are seeing greater focus, though many datacenter operators are not changing their baseline designs, which they find can meet current AI requirements.
- **Grid improvements:** Grid modernization efforts are expected to continue in earnest in 2024 to meet demand.
- **New chips from NVIDIA peers:** More new chips are expected from NVIDIA peers. AMD has already announced its MI300x, which claims to perform better than NVIDIA H100. Intel's Gaudi-3 AI accelerator is also expected soon, which will enable both liquid-cooled and air-cooled servers, supported by Vertiv pumped two-phase (P2P) cooling.

Source: RBC Capital Markets, company reports

Canadian Telecommunications & Media: Key ingredients in place for a much better 2024

Canadian telecom: Expecting better alignment of interest rates and fundamentals

- **Our favorite names: RCI.B & T**
- **All should be relatively quiet on the M&A front:**
  - Expecting a year of digesting the Rogers-Shaw-Quebecor transactions and Internet re-seller acquisitions
- **Competitive environment to remain disciplined despite a strengthening Quebecor:**
  - Multiple incentives are in place to remain disciplined, including healthy wireless and Internet market expansion, lingering inflation and higher interest rates and the desire to sustain wireless ARPU growth, generate positive cable revenue growth, institute core price increases and de-lever balance sheets
- **An unusually benign year for regulatory risk:**
  - We expect the recent interim Internet wholesale access rate decision and early commercialization of the hybrid MVNO framework to be manageable impacts for the Big 3
- **Lowering the cost to serve to become a more meaningful differentiator:**
  - Scaled copper de-commissioning by the telcos and the realization of digitization efficiencies finally begin to accelerate
- **All operators make long-awaited progress on balance sheet de-levering:**
  - 2023 proves to be “peak leverage” for the industry following years of rising net debt/EBITDA ratios due to spectrum and M&A

Canadian media technology, content and distribution: Getting off the mat after a near knockout in 2023

- **Our favorite names: FORA & CGX**
- **Stocks move beyond “trough-on-trough” valuation levels as advertising visibility improves:**
  - 2023 proves to be cyclical lows for the stocks on improving (albeit likely imperfect) advertising visibility
  - Content cycle fires back up with U.S. guild strike impacts waning by H2/24
- **Thomson Reuters puts real GenAI monetization to the test:**
  - A Canadian leader in GenAI integration through H1/24 with real monetization beginning in H2/24

Source: RBC Capital Markets, company reports

RBC Capital Markets provided a fairness opinion to Cogeco Inc. (TSX: CGO) special committee in connection with Cogeco Inc. repurchase of its Cogeco subordinate voting shares (the “CGO SVS”) from CDPQ as press released on December 11th, 2023.

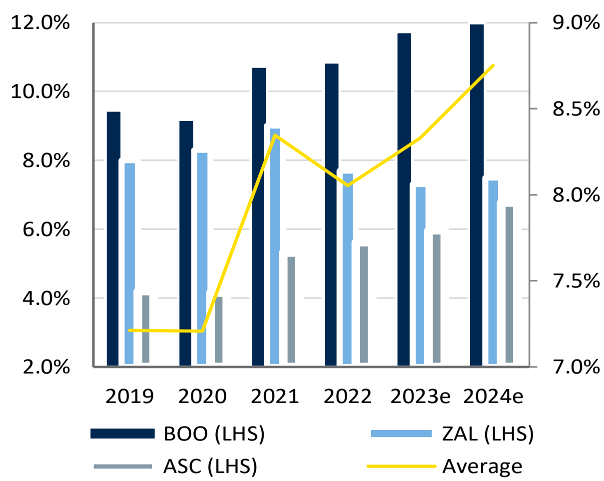
European Internet: Turning more positive on growth in 2024

For 2024, we remain cautious on the consumer environment, given headwinds from normalising wage growth. Given this, the trend of consumers managing their budgets and looking for value should continue. Given these, **we expect an acceleration in growth of the sector to be mainly driven by internet companies increasingly going after growth and gaining market share.**

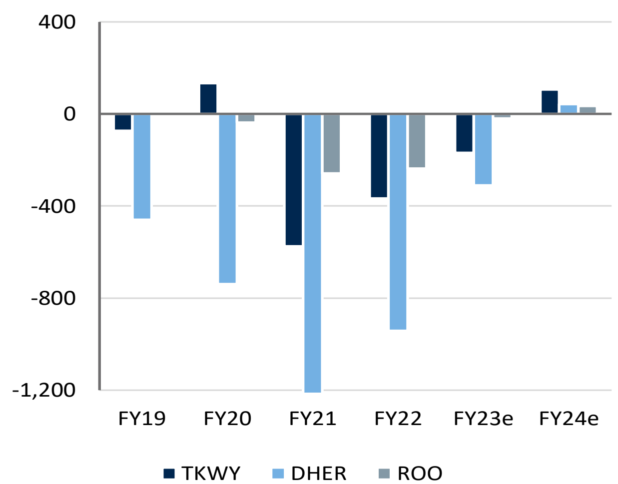
- **Internet retail:** We believe internet retailers are at an inflection point, in terms of growth. From FY24, we expect an acceleration in growth of the segment to be supported by a normalising trend of consumers returning to stores, more attractive propositions offered to consumers and a higher marketing spend. An acceleration in growth of the Internet retail sector to be mainly driven by volume, in our view. Meanwhile, basket sizes should stabilise on the back of material cost deflation and normalising freight.
- **Food delivery:** While food delivery companies are increasingly focusing on profitability and FCF, we believe management will not sacrifice their positioning in their key markets. They will focus their investments on high-return growth opportunities, particularly in the markets where they have leadership or competition is limited.
- **Internet classifieds:** Negative impacts from political uncertainties and normalising used car/ property prices. Competition from CoStar remaining a main concern for the internet property classifieds segment.

***Top Picks:** Zalando (OP, €44 PT), Delivery Hero (OP, €73 PT), Scout24 (OP, €79 PT) and TeamViewer (OP, €19 PT).*

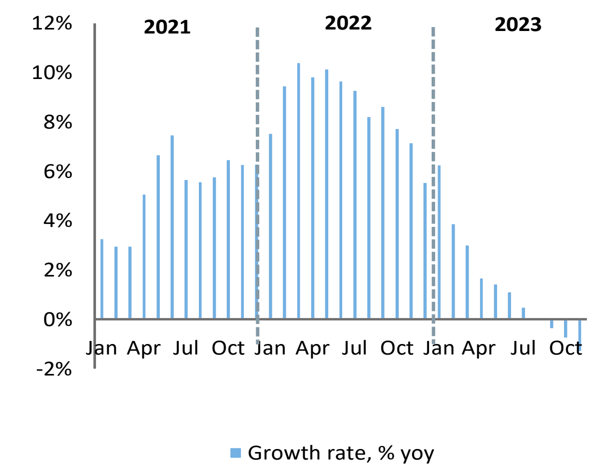
Internet Retail: Internet retailers increasingly investing in growth
Marketing spend, % of revenue



Food delivery: European food delivery companies reaching positive FCF organically for the first time
Free cash flow, local currency mn



Internet classifieds: Headwinds from political uncertainties and normalising property/ used car prices
UK residential property price growth, % yoy



Source: RBC Capital Markets estimates, Company data, Visible Alpha, Rightmove House Price Index

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Companies mentioned

Accenture Public Limited Company (NYSE: ACN US; $342.73; Outperform)
Adobe Inc. (NASDAQ: ADBE US; $584.64; Outperform)
Alphabet Inc. (NASDAQ: GOOGL US; $131.94; Outperform)
Amazon.com, Inc. (NASDAQ: AMZN US; $147.42; Outperform)
American Tower Corporation (NYSE: AMT US; $212.17; Outperform)
Box, Inc. (NYSE: BOX US; $24.63; Underperform)
Cellnex Telecom, S.A. (MADRID: CLNX SM; €36.32; Outperform)
Cineplex Inc. (TSX: CGX CN; C$8.24; Outperform)
Cintas Corporation (NASDAQ: CTAS US; $563.42; Outperform)
Cloudflare, Inc. (NYSE: NET US; $84.66; Outperform)
CoStar Group, Inc. (NASDAQ: CSGP US; $88.25; Outperform)
Confluent Inc (NASDAQ: CFLT US; $25.72; Outperform)
Couchbase Inc (NASDAQ: BASE US; $24.52; Outperform)
Coursera Inc (NYSE: COUR US; $20.76; Outperform)
Coveo Solutions Inc (TSX: CVO CN; C$9.78; Outperform)
CrowdStrike Holdings, Inc. (NASDAQ: CRWD US; $252.68; Outperform)
Crown Castle Inc. (NYSE: CCI US; $114.55; Sector Perform)
Datadog, Inc. (NASDAQ: DDOG US; $120.65; Outperform)
Delivery Hero SE (XETRA: DHER GR; €30.11; Outperform)
Digital Realty Trust, Inc. (NYSE: DLR US; $132.93; Outperform)
DoubleVerify Holdings Inc (NYSE: DV US; $35.68; Outperform)
Dropbox, Inc. (NASDAQ: DBX US; $28.94; Outperform)
Dynatrace, Inc. (NYSE: DT US; $54.63; Outperform)
Elastic N.V. (NYSE: ESTC US; $113.82; Outperform)
Equinix, Inc. (NASDAQ: EQIX US; $805.29; Outperform)
FactSet Research Systems Inc. (NYSE: FDS US; $454.00; Sector Perform)
Fastly Inc (NYSE: FSLY US; $18.96; Underperform)
First Advantage Corporation (NASDAQ: FA US; $16.22; Sector Perform)
GDS Holdings Limited (NASDAQ: GDS US; $8.78; Sector Perform; Speculative Risk)
Gen Digital Inc. (NASDAQ: GEN US; $22.95; Sector Perform)
Gitlab Inc (NASDAQ: GTLB US; $64.80; Outperform)
HubSpot, Inc. (NYSE: HUBS US; $553.35; Outperform)
Iron Mountain Incorporated (NYSE: IRM US; $68.45; Outperform)
Megaport Limited (ASX: MP1 AU; AUD10.03; Outperform; Speculative Risk)
Meta Platforms, Inc. (NASDAQ: META US; $333.17; Outperform)
Microsoft Corporation (NASDAQ: MSFT US; $365.93; Outperform)
Model N, Inc. (NYSE: MODN US; $23.70; Sector Perform)
MongoDB Inc (NASDAQ: MDB US; $419.24; Outperform)
Moody's Corporation (NYSE: MCO US; $391.62; Outperform)
N-Able Inc (NYSE: NABL US; $12.57; Outperform)
NEXTDC Limited (ASX: NXT AU; AUD13.39; Outperform)
NICE Ltd. (NASDAQ: NICE US; $200.02; Outperform)
Nutanix, Inc. (NASDAQ: NTNX US; $46.49; Outperform)
Olo Inc. (NYSE: OLO US; $5.95; Outperform)
Pagerduty, Inc. (NYSE: PD US; $23.29; Outperform)
Palo Alto Networks, Inc. (NYSE: PANW US; $300.44; Outperform)
Paychex, Inc. (NASDAQ: PAYX US; $126.83; Sector Perform)
Pinterest, Inc. (NYSE: PINS US; $37.01; Outperform)
Pro Medicus Limited (ASX: PME AU; AUD93.26; Sector Perform)
Qualys, Inc. (NASDAQ: QLYS US; $195.61; Sector Perform)
Rapid7, Inc. (NASDAQ: RPD US; $58.87; Outperform)

Rogers Communications Inc. (TSX: RCI/B CN; C$61.60; Outperform)
Rollins, Inc. (NYSE: ROL US; $42.74; Outperform)
S&P Global Inc. (NYSE: SPGI US; $437.78; Outperform)
Scout24 SE (XETRA: G24 GR; €63.78; Outperform)
ServiceNow, Inc. (NYSE: NOW US; $680.39; Outperform)
Smartsheet Inc. (NYSE: SMAR US; $45.14; Sector Perform)
TELUS Corporation (TSX: T CN; C$24.61; Outperform)
TeamViewer SE (XETRA: TMV GR; €13.91; Outperform)
Teradata Corporation (NYSE: TDC US; $42.44; Sector Perform)
The Descartes Systems Group Inc. (NASDAQ: DSGX US; $83.76; Outperform)
The Trade Desk, Inc. (NASDAQ: TTD US; $76.08; Outperform)
Twilio Inc. (NYSE: TWLO US; $75.82; Underperform)
Veeva Systems Inc. (NYSE: VEEV US; $182.84; Outperform)
Verisk Analytics, Inc. (NASDAQ: VRSK US; $235.43; Outperform)
VerticalScope Holdings Inc (TSX: FORA CN; C$5.19; Outperform)
Workday, Inc. (NASDAQ: WDAY US; $270.78; Outperform)
Zalando SE (XETRA: ZAL GR; €22.09; Outperform)
Zoom Video Communications, Inc. (NASDAQ: ZM US; $72.14; Outperform)
ZoomInfo Technologies Inc (NASDAQ: ZI US; $18.29; Sector Perform)

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