LUMA is pleased to present our 2023 State of Digital report.

But First, a Preamble From LUMA's Leadership

LUMA

A few overarching observations and some news before we delve into the specific trends and markets discussion.

For the last five years, we have opened our Digital Media Summit with the concept of accelerating change in our ecosystem. Just when we think we're at peak change, the following year says: "hold my beer". We believe this state of perpetual accelerated dynamics is the new normal.

LUMA

In fact, given the accelerants over a compressed period of time, it seems change is going vertical.

Conditions Precedent

1 PANDEMIC AFTER EFFECTS

2 NON-ZERO INTEREST RATES

3 ELON MUSK "PERMISSION" FOR ZERO-BASED TALENT

4 ARTIFICIAL INTELLIGENCE

There are 4 conditions precedent to this change state:

1) Pandemic After Effects that have changed everything from consumer behavior to work habits,
2) Non-Zero Interest Rates that have implications on business investment and business model management,
3) Elon Musk's recent mass RIF (90%) at Twitter have given the rest of the business world "permission" to think of talent composition on a zero basis (every job must be justified), and
4) The rapid rise to prominence of Artificial Intelligence and its associated applications. This is the after burner!

We believe the consequences are vast, including the need for every company to radically rethink the key components of their business:

- Product Strategy (the WHAT)
- Go To Market (the HOW)
- Talent Composition (the WHO)

LUMA

At LUMA, we are not just idle prognosticators but rather we eat our own dog food. We have reconfigured our firm to better serve clients for where the industry and markets are headed. We could not be more optimistic nor more excited for the future. Welcome to LUMA 2.0!

The most consequential of these changes is the promotion of Conor McKenna to Partner at LUMA. For 9 years, Conor has put on a clinic of how to do banking right, the LUMA way. He cut his teeth on deal execution but also knows the industry trends, articulates keen insights, and has developed deep, trusted relationships - not to mention adept comedy chops. No one has been more deserving of the title. This is LUMA 2.0!

Two years ago, Eric Seufert coined the expression "Everything is an Ad Network" reflecting the rise of advertising-based business models across a variety of companies, led by retailers. Not a week goes by where examples of this phenomenon don't appear which has made the expression such a common refrain.

LUMA

We're taking this concept further, recognizing that the phenomenon goes beyond ad network or media implementations to data and other technologies. We're also echoing the great tech investor Marc Andreesen's expression from 2011 relating to software to exclaim, "Ad Tech is Eating the World".

Building Blocks for Scaled Digital Ad Ecosystem

CONSUMER ADOPTION

DATA / IDENTITY

AUTOMATION + PERFORMANCE

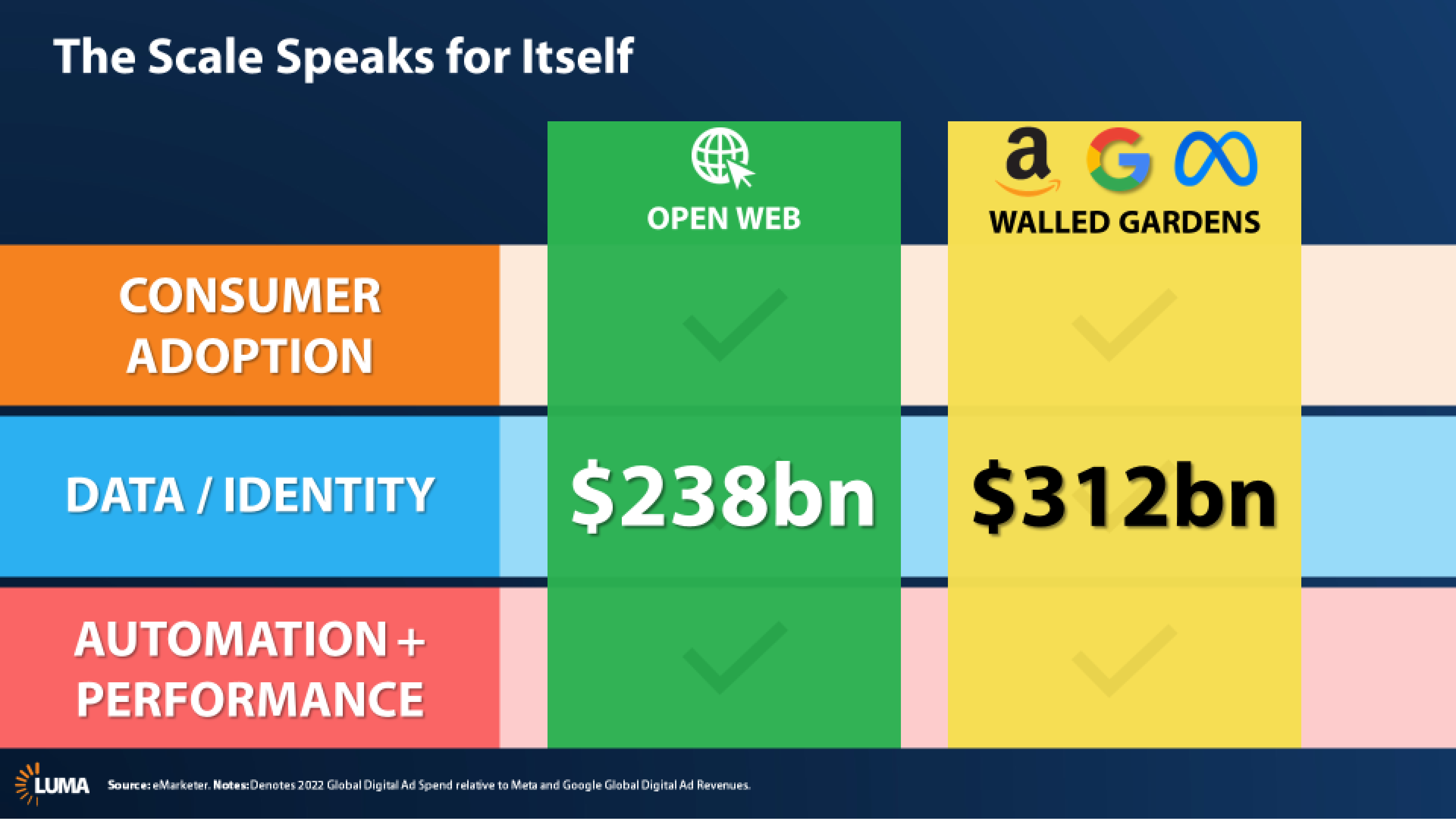
If we're entering a phase where everything is becoming an Ad Network and "Ad Tech is Eating the World", then it's critical to understand what are the conditions and capabilities required to build a scaled, digital advertising platform. As we thought about this and looked back at past successes and failures, we realized that at a foundational level, scaled digital ad ecosystems start with 3 core building blocks, which tend to come in order. (1) it starts with consumer adoption because without the people there is nothing, (2) you must have access to and the ability to action on robust data from the consumer base, and (3) the hardest, is creating the automation and performance that will drive scale, providing access to millions of advertisers and proving the efficacy of the channel.

Conditions Precedent for Programmatic & Walled Gardens

	OPEN WEB	WALLED GARDENS
CONSUMER ADOPTION	✓	✓
DATA / IDENTITY	✓	✓
AUTOMATION + PERFORMANCE	✓	✓

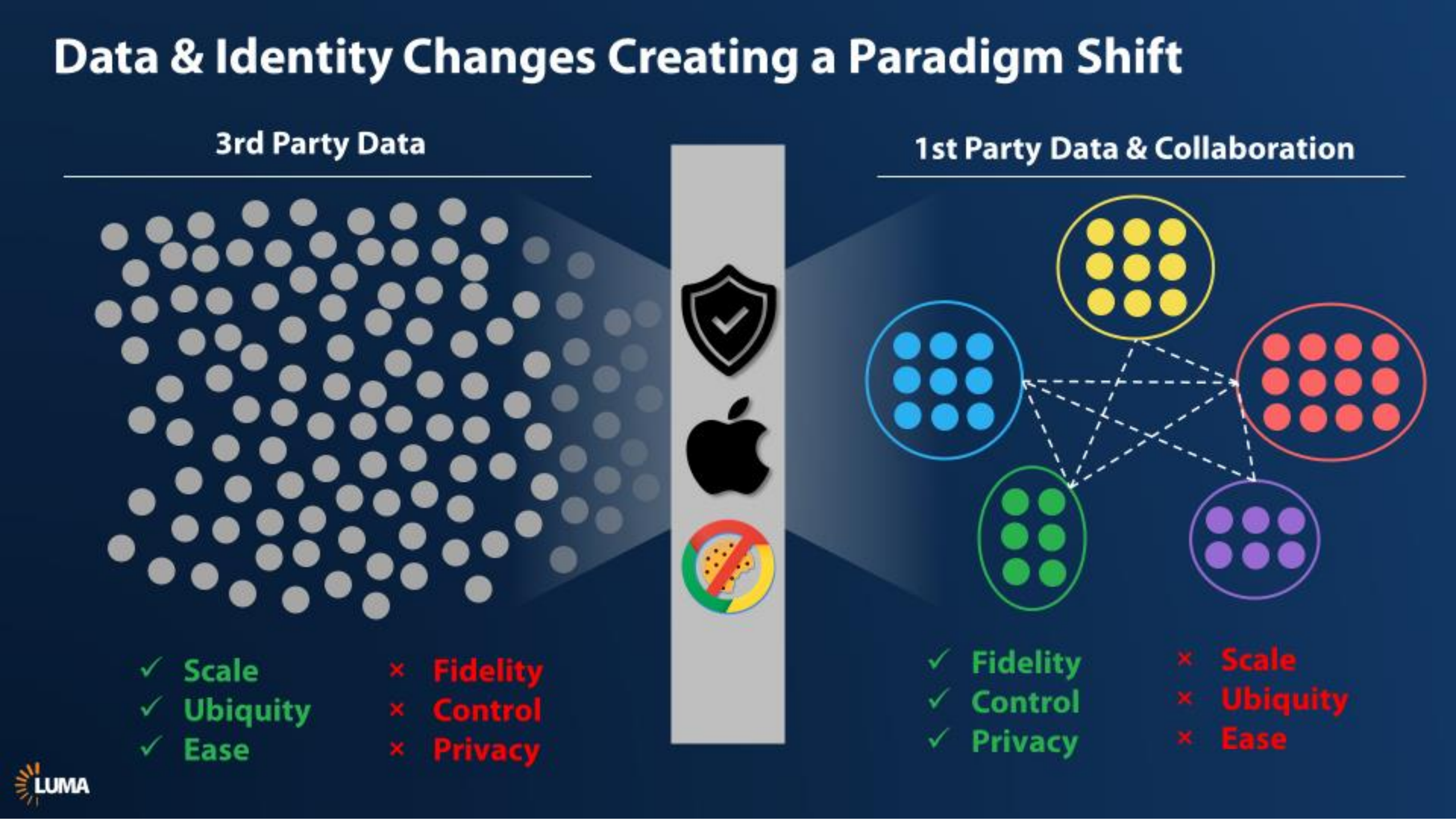
LUMA

These were the exact conditions precedent that has led to the massive growth in both programmatic / open web and walled garden advertising over the last 15 years. Each started with consumer adoption as people flocked to the internet broadly, and in particular to walled garden platforms. This consumer usage led to a vibrant data marketplace with both third-party data in the open web and first party data in the walled gardens, which was then actionable via the programmatic and performance capabilities created in the market. These have allowed marketers to find more efficiency in both their workflows and the return on investment in advertising, which has led to massive scale.



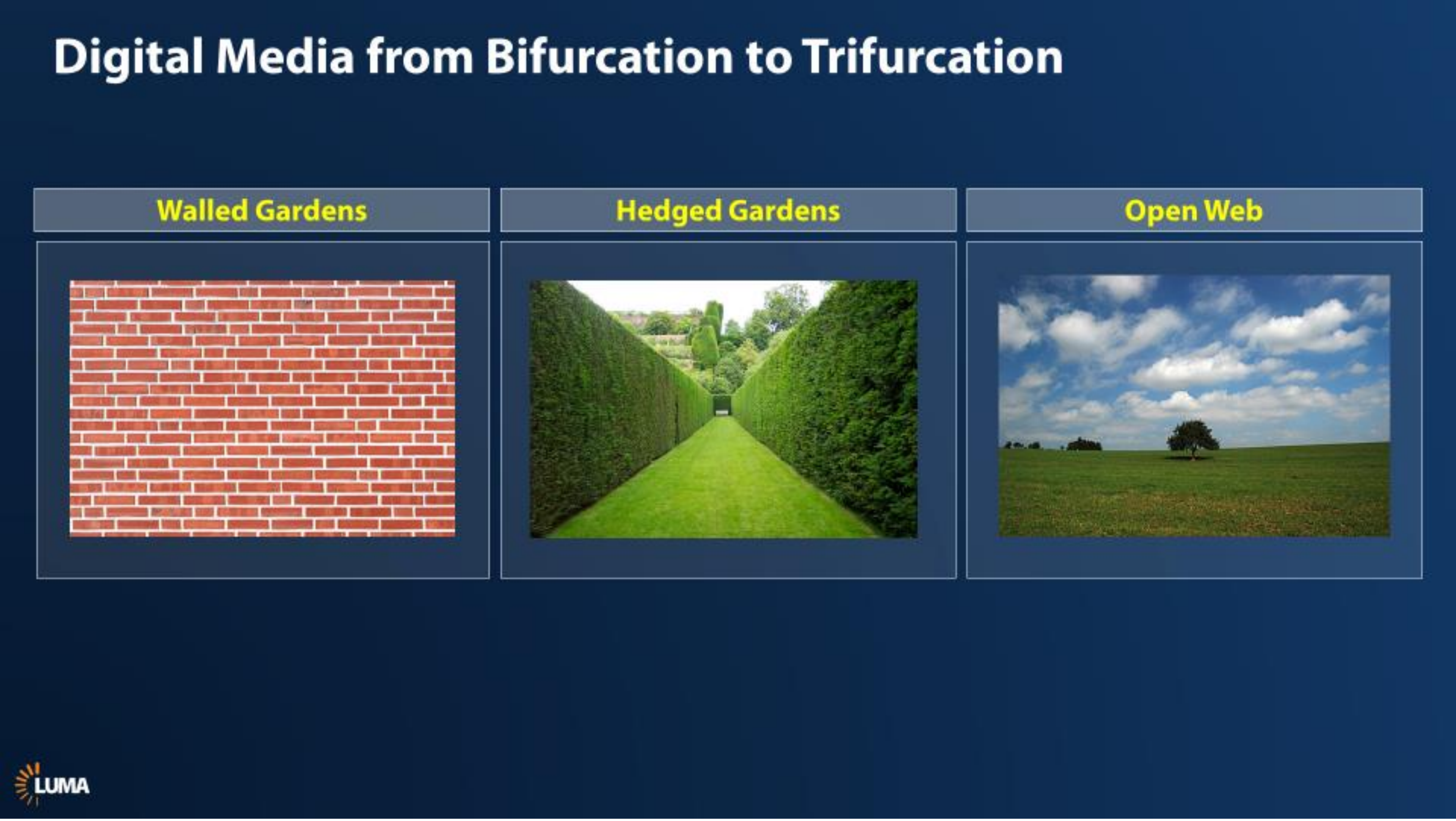
As of 2022, there was over half a trillion of ad spend across the global digital ecosystem, and it continues to grow year in and year out.

However, over the last few years both regulatory and platform changes have created cracks in the foundation. These changes have primarily focused on what data / identity signals can be accessed and how they can be shared with other platforms, creating significant signal loss, which in turn challenges the performance abilities of these channels.



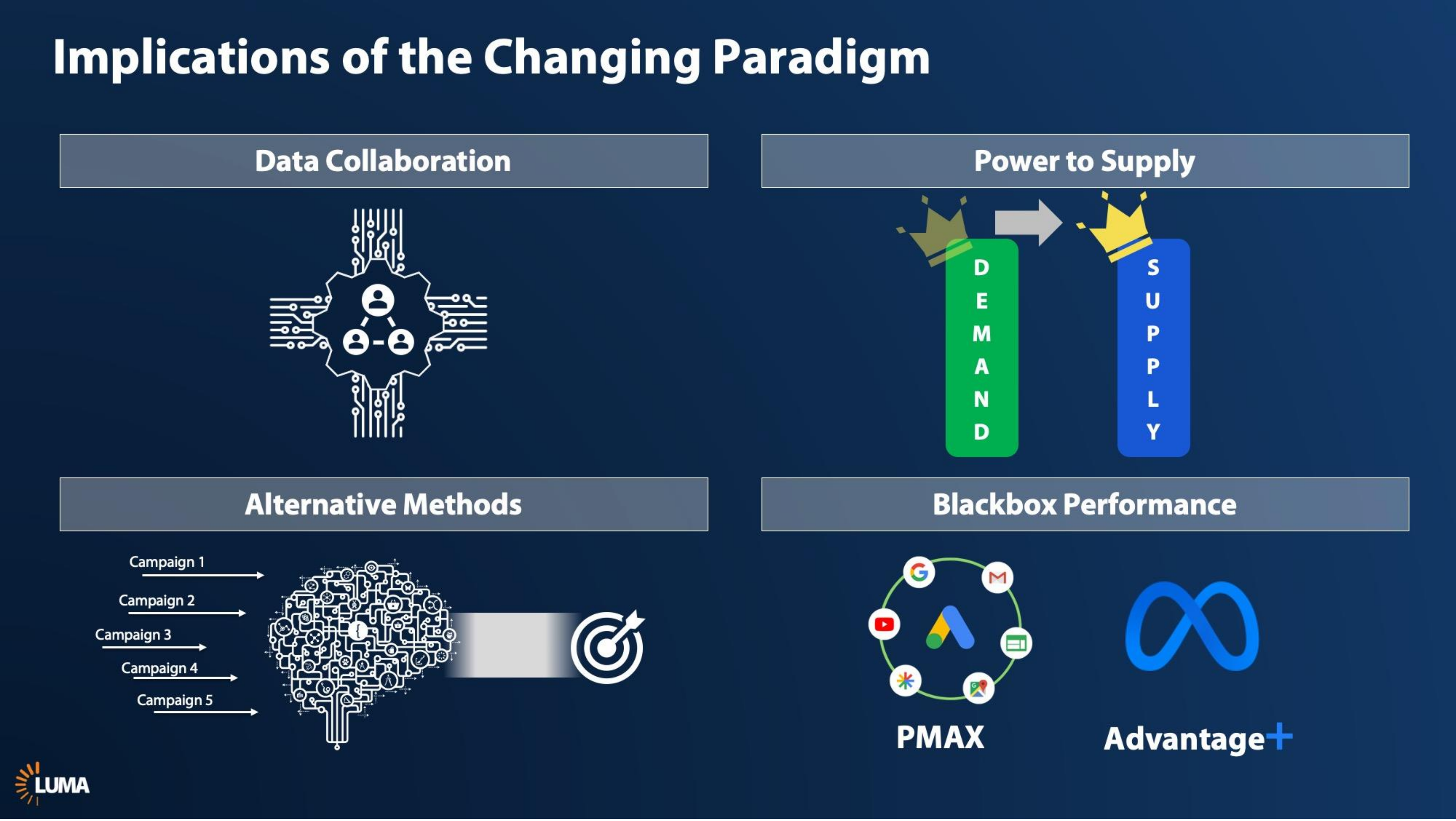
The first era of Ad Tech leveraged 3rd Party data at its foundation – Cookies, IDFAs, MAIDs, and other identifiers enabled scaled, ubiquitous targeting & measurement with ease. This came at the expense of fidelity, control, and user privacy. As the ecosystem filters through these regulatory and platform changes, the next era of Ad Tech will require the use of first-party data and data collaboration by ecosystem constituents to preserve and continue growing this vibrant marketplace. In this next era, the scale, ubiquity, and ease that came with the first era of Ad Tech will be flipped. The use of first-party data and the need for data collaboration will skew towards fidelity, control, and privacy, but will have limitations on scale, consistency / ubiquity of identifiers, and will overall be much harder to execute.

In many ways were are shifting from an "open party" that anyone could attend, to a more bespoke, exclusive marketplace where premium suppliers and marketers collaborate to generate the level of performance commensurate to the third-party era of Ad Tech.



As we discussed last year, we see this change manifesting in the digital ecosystem shifting from a bifurcated world of Walled Gardens and the Open Web, to a trifurcated market, with "Hedged Gardens" in the middle. These hedged gardens are basically companies with large pools of first-party consumer data that run their O&O business, but it's not big enough for them to own all the tech or attract all the spend, without working with others.

Hedges are not as tall as walls, and they're more permeable. So, often they have to go off network and you tend to find these in CTV, Commerce Media, Audio and Gaming.

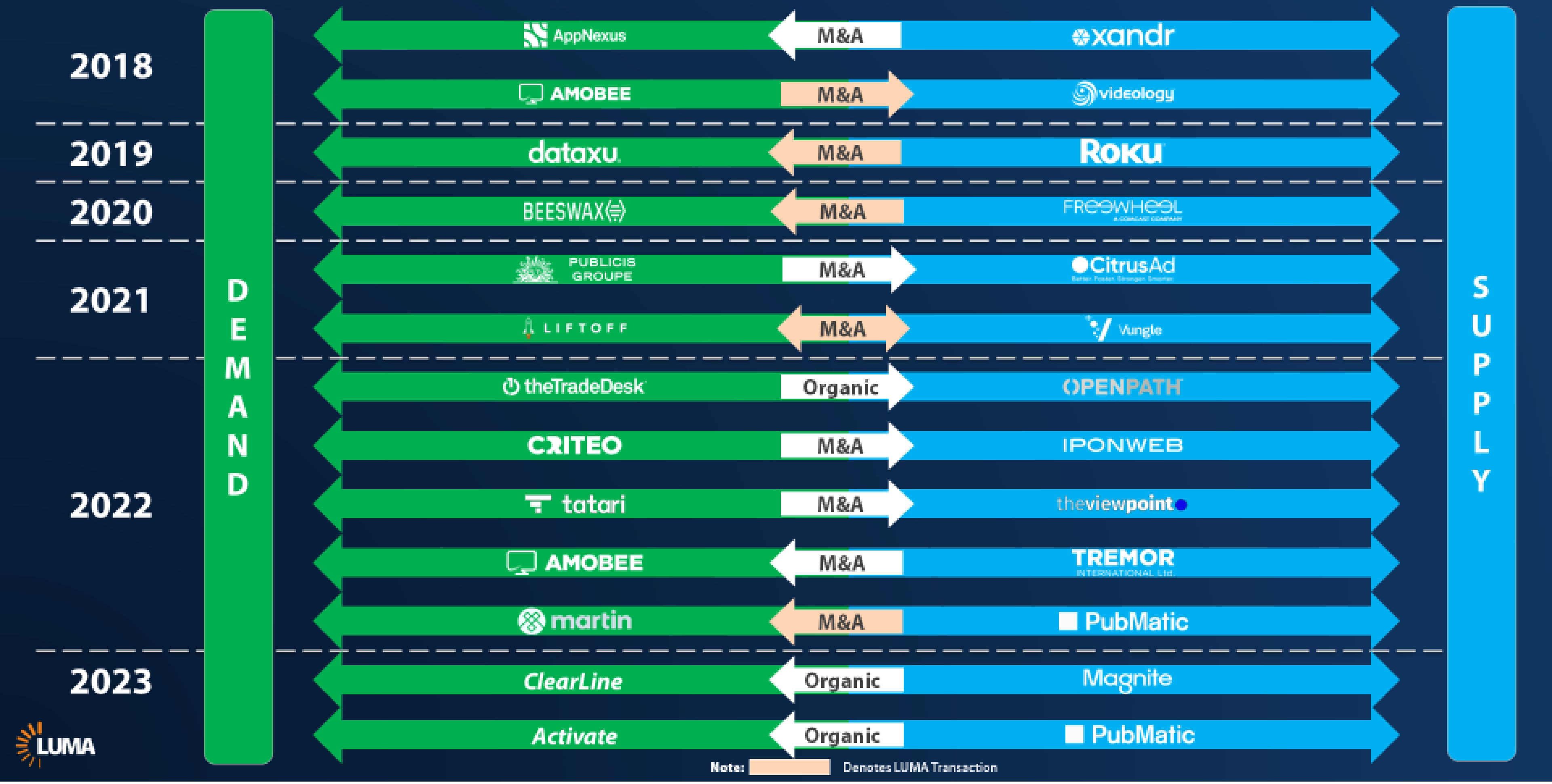


The shifting data landscape and the rise of hedged gardens come with critical down stream impacts: (1) a requirement to focus on data collaboration, which incudes participating from the demand side, supply side, and the tech intermediaries, (2) a shift of relative power from the Demand-side to Supply-side as publishers (in particular premium publishers with strong customer relationships) own the scarcity of addressable inventory and consumer data, (3) changes in how campaigns will be optimized, leading to a rise in alternative targeting and attribution methodologies, including a greater focus on probabilistic, and (4) a rise in "black-box performance" from scaled platforms leveraging deeply integrated AI & ML to improve performance at the cost control and visibility.

Increased Focus On "Horizontal" Strategies

For several years, we've been suggesting that Supply-Path Optimization ("SPO") would usher in a new wave of horizontal strategies ("Horizontality") whereby Ad Tech intermediaries create end-to-end capabilities that bridge Demand and Supply.

Increased Focus On "Horizontal" Strategies



Our "Horizontality" call proved to be prescient as we have since seen numerous companies pursue similar strategies to unify the Demand-side and Supply-side. These strategies have been manifested by either organic initiatives, or more commonly, acquisitions.

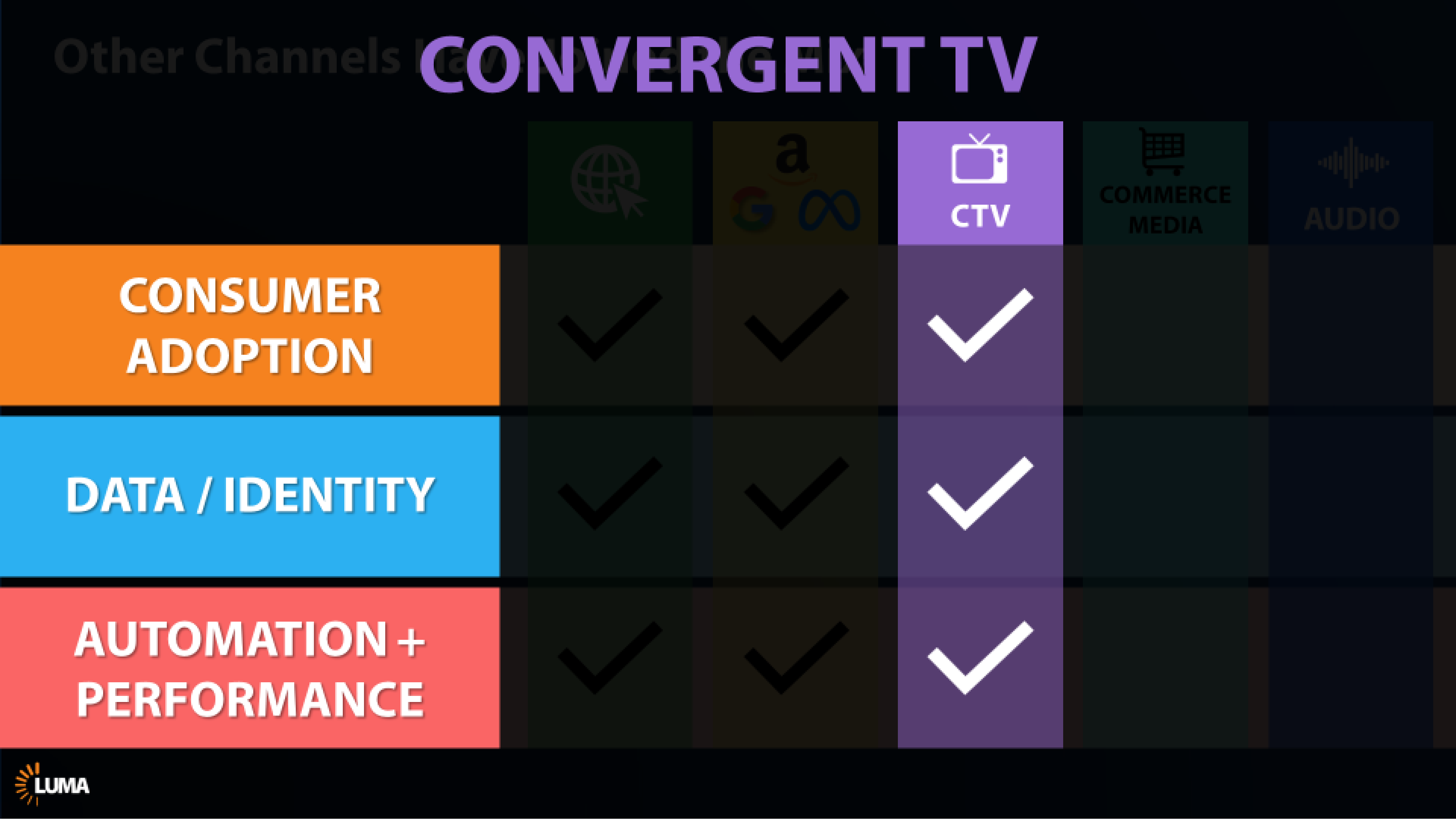
Increased Focus On "Horizontal" Strategies

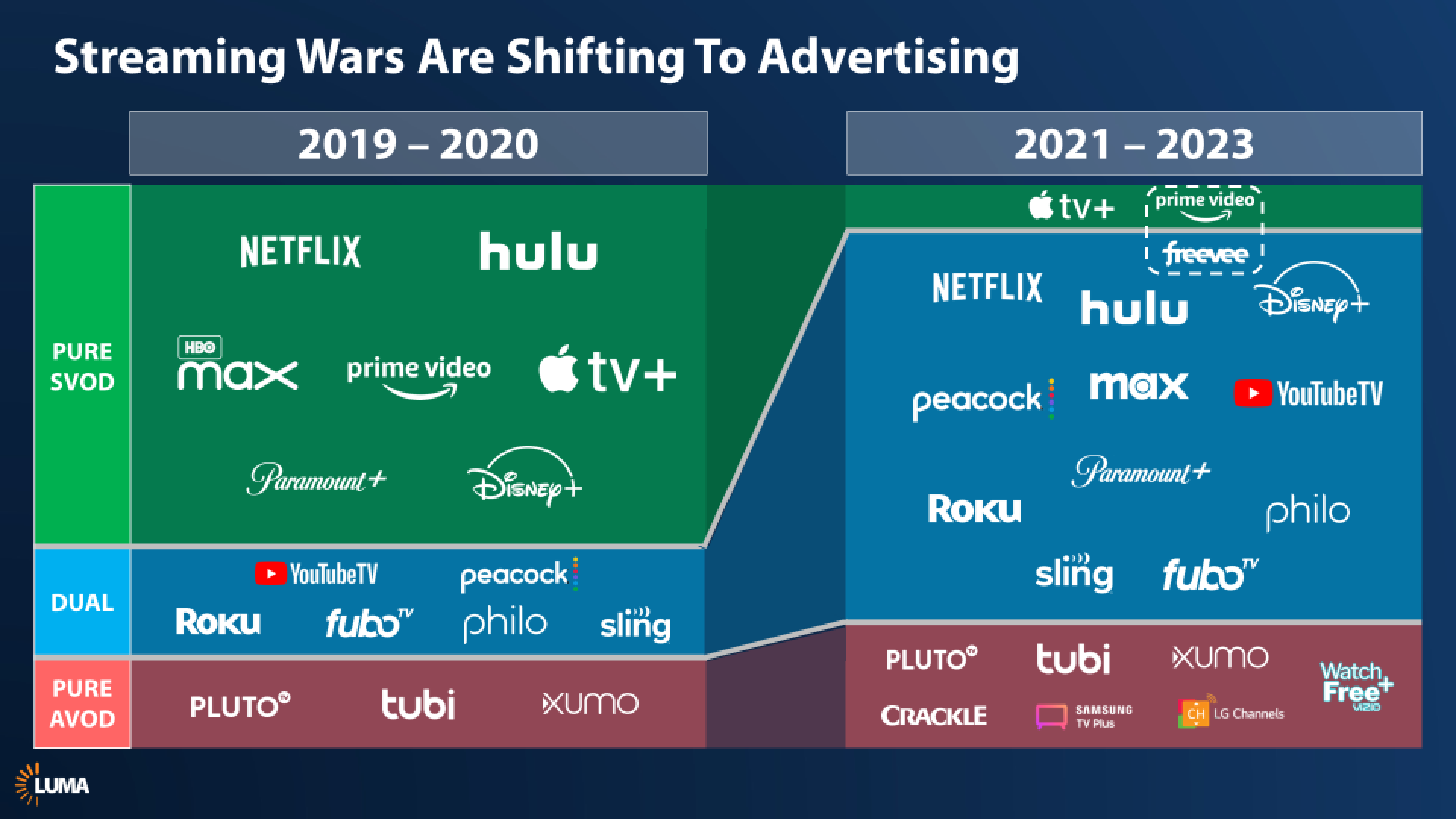
There are a variety of benefits from such Horizontal strategies as a function of having fewer hops on the supply path and fewer mouths to feed.

SPO Focus Also Driving Critical Changes in Sustainability

The efforts to make the supply path more efficient have exposed substantial and needless waste as trillions of unnecessary transactions, workflow, server costs and storage costs are present in the programmatic media bid stream. Sustainability initiatives have garnered well-deserved traction as all parties are incented to eliminate this waste, regardless whether the motivation is to save the planet or make more profit. LUMA applauds this effort as both motivations are green!

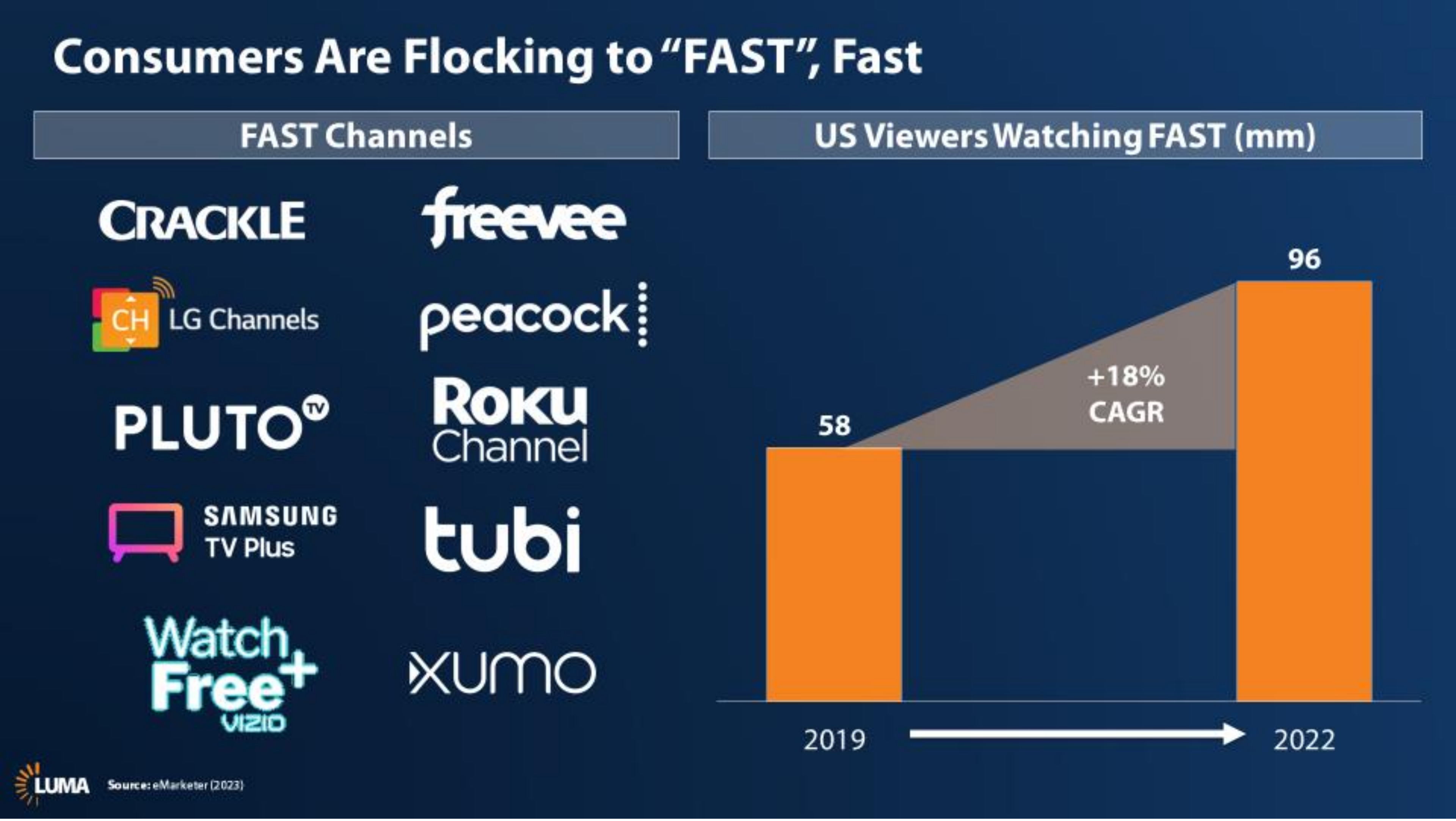
Beyond the broad categories of "Open Web" and "Walled Gardens", we use this same framework of (1) consumer adoption, (2) data / identity access, and (3) automation & performance tech to evaluate emerging sub-categories in the digital ecosystem. This allows us to understand where each category is, better understand the opportunity at hand, and assess the ability to scale in the future. It's with these foundations in mind that we direct our attention to the Convergent TV, Commerce Media, and Audio channels.


CONVERGENT TV
CTV
COMMERCE MEDIA
AUDIO
CONSUMER ADOPTION
DATA / IDENTITY
AUTOMATION + PERFORMANCE
LUMA



When the Streaming Wars began, the significant majority of scaled players had pure-play subscription offerings. Over the past two years, there has been mass proliferation of ad-supported offerings as all of the players that were purely subscription prior have blended models - offering ad-free subscriptions, "ad-light" subscriptions, and free, ad-supported offerings.

LUMA



While premium ad-supported viewership is growing, Free Ad-Supported Television ("FAST") channels is also proving to be popular. These are Streaming Linear TV channels frequently offered by device manufacturers (Samsung, LG, Vizio, Roku) for free to consumers. Often the content will be library or syndicated content from aggregators / publishers. While a full linear ad load in a streaming context seems like a challenging user experience, the concept of "free" is a powerful incentive.

Sports Remains Critical in the Battle for TV

The "Belle of the Ball" in TV remains sports - specifically the NFL. Some streaming platforms have made wins in the sports space - Peacock with the English Premiere League, Amazon with Thursday Night Football. Most recently, Google won the rights to NFL's Sunday Ticket streaming platform (previously delivered by DirecTV) for $2bn annually.

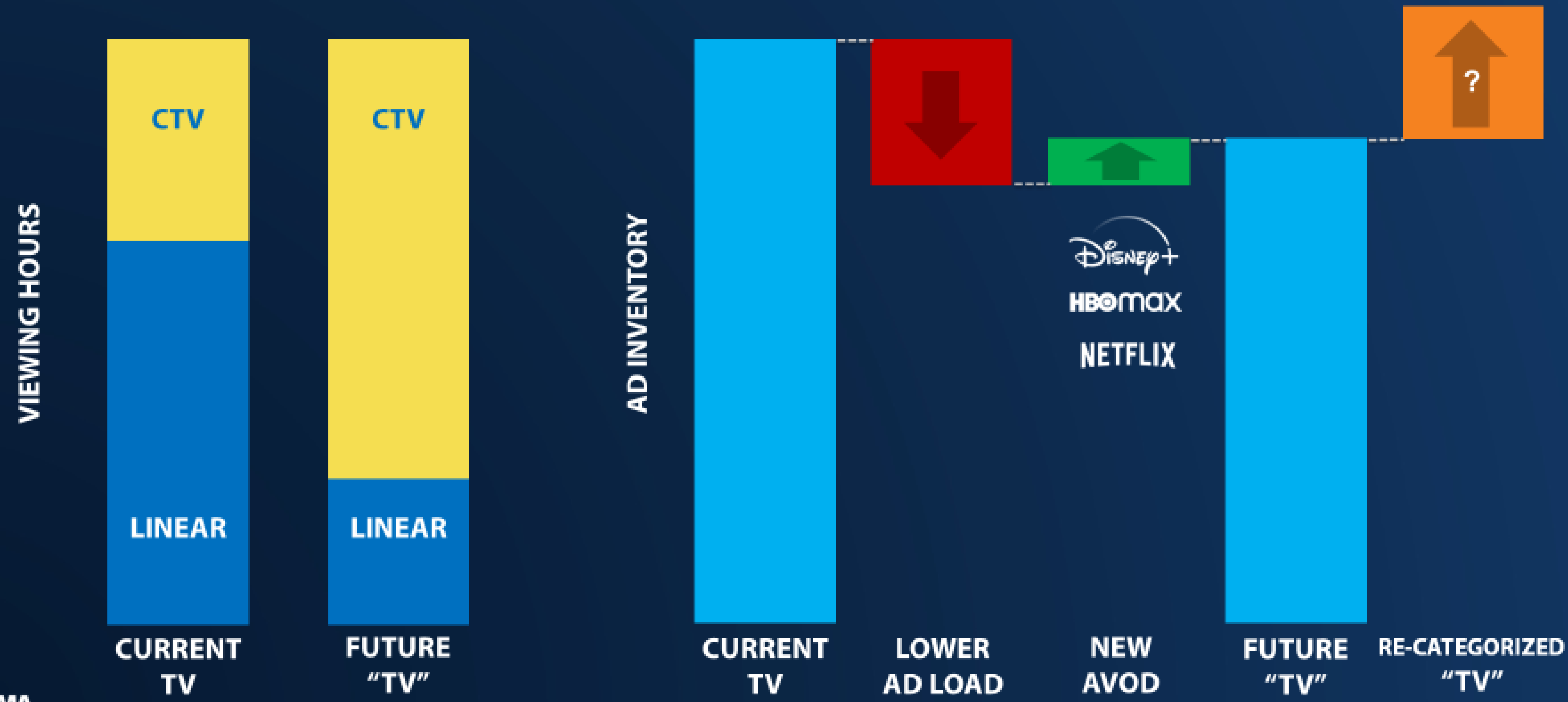
Sports Remains Critical in the Battle for TV

The NFL is the duct tape holding together the linear TV bundle.

We have long observed that live sports and particularly NFL content is the duct tape that has held together the linear bundle. With that content shifting to streaming, expect an inflect in the linear decline curve.

Bridging TV's Demand / Supply Imbalance

CTV, like TV and unlike digital, is a supply-constrained media channel and the market will balance itself with more "TV" supply



TV viewership will inevitably shift from linear to streaming, though linear will have a floor due to lack of broadband penetration (currently ~25% of US households).

Viewership will likely drop due to substantially lower ad loads in streaming. Despite the addition of new AVOD and FAST inventory, the supply of TV ad inventory will shrink. Since tens of billions of dollars are at stake, we believe all parties will be incented to recategorize inventory from other channels as "TV".

"TV" Inventory Recategorization

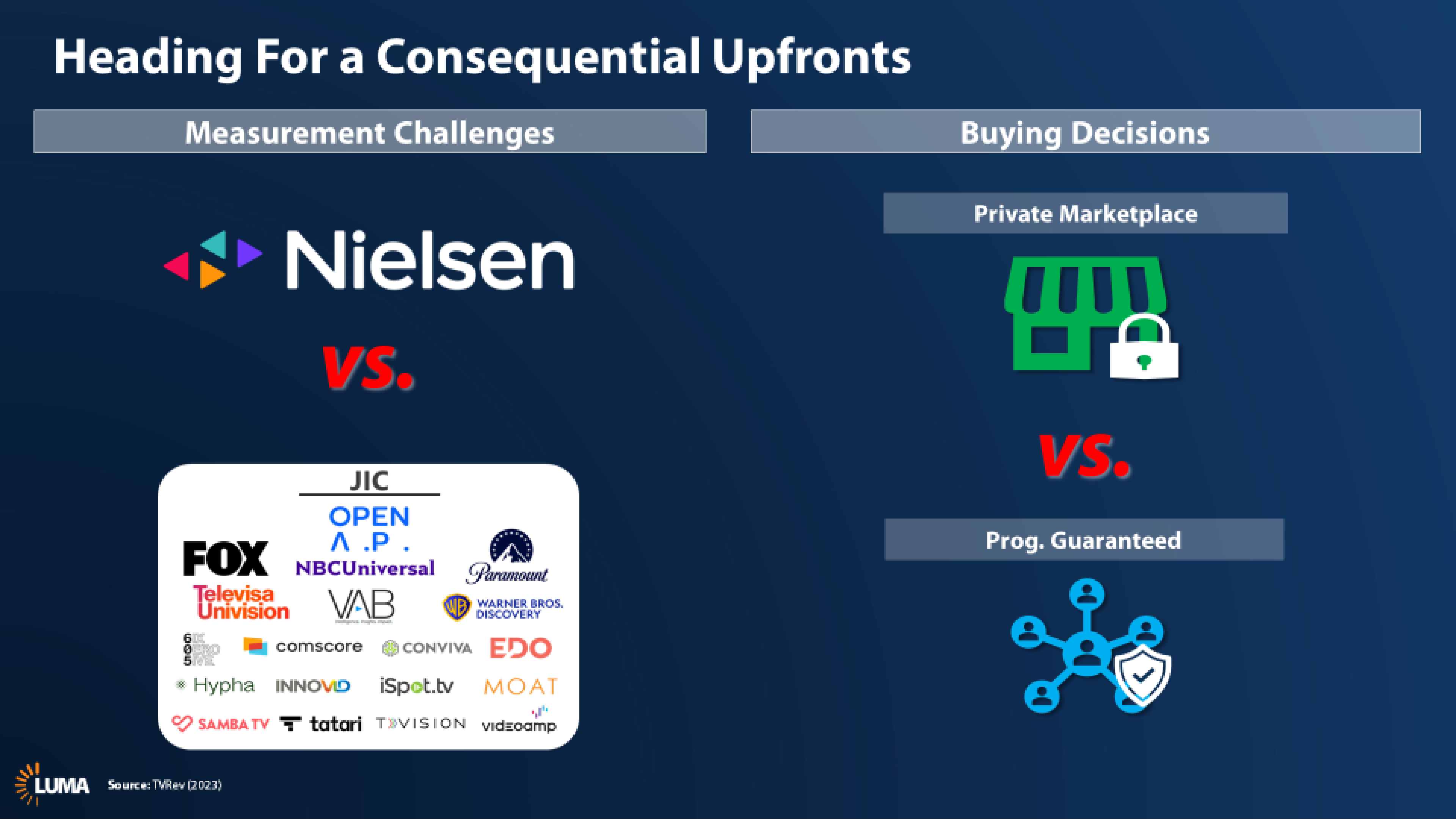
Category	Sub-channel	Example	Expansion
TV	Linear TV	CBS	
	CTV – AVOD	hulu	
	CTV – FAST	pluto tv	
	Digital Video	YouTube	
"TV"	Mobile	TikTok	
	Audio	Spotify	
	DOOH	LAMAR	
	Console Gaming	playerwon	

LUMA

The extent of this recategorization will depend on advertisers receptivity. YouTube – which represents 8% of overall TV consumption, half of which is watched on a TV (as opposed to mobile or desktop) – is likely the first to recategorize. We note that YouTube has held Upfront events for the 2nd year in a row (in addition to their historical Newfronts presence). TikTok and other social video channels are vying for that TV budget and we believe it's only a matter of time until other video-centric media are sold as a "TV" offering.

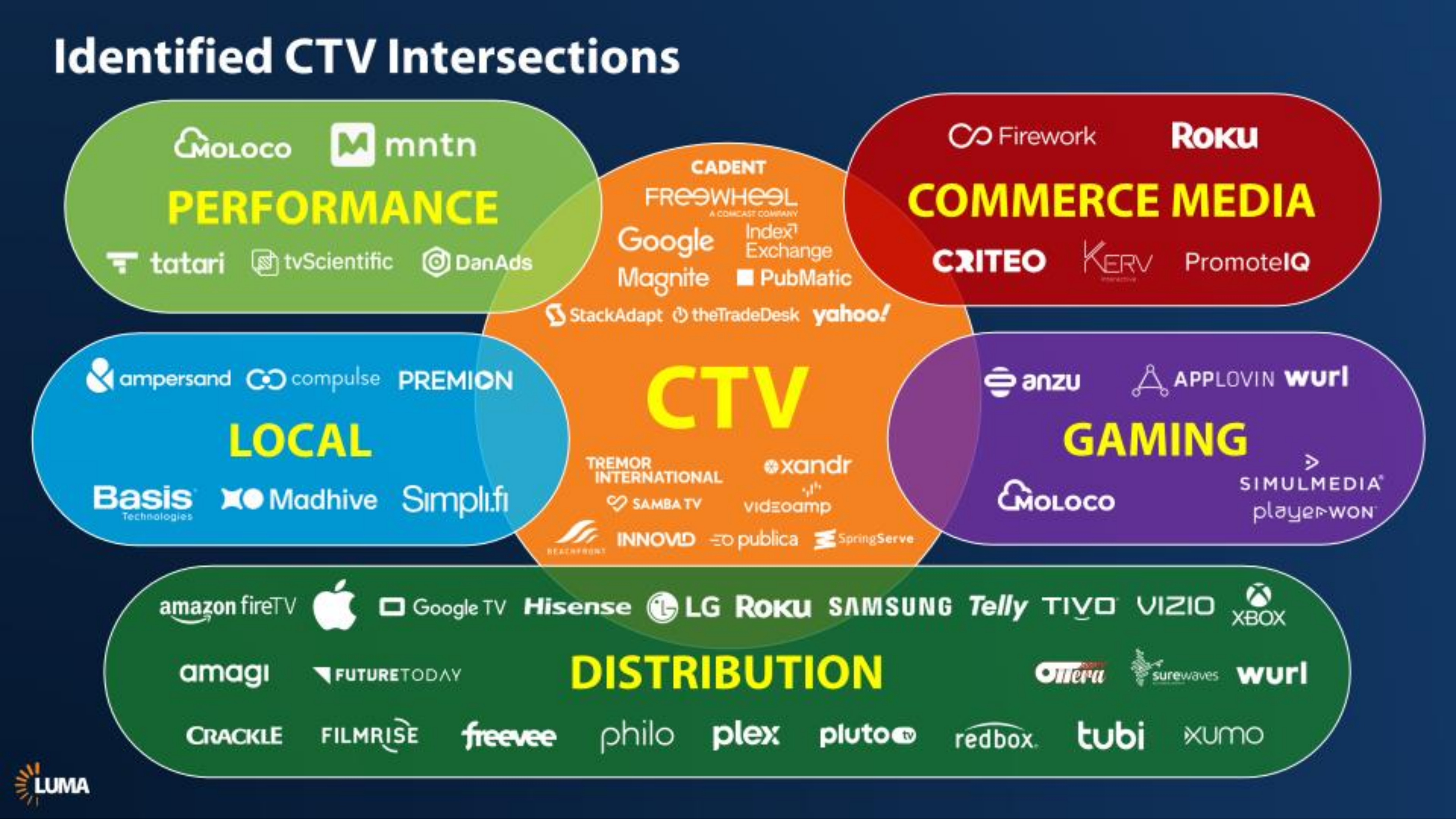
Given its incredible attention and engagement metrics, TikTok could well be the next platform to sell itself as a TV substitute, particularly due to its strong preference by Gen Z audiences coveted by marketers.

LUMA



The 2023 Upfront season will be a test of what's to come in Convergent TV - particularly with respect to measurement and how deals are done. For measurement, the battle between industry-standard currency vendor, Nielsen, and the publishers + alternative measurement vendors is just beginning.

On the buying front, CTV marketers are looking to facilitate media buys via PMP deals while publishers and content aggregators hope to lock in Programmatic Guaranteed deals.



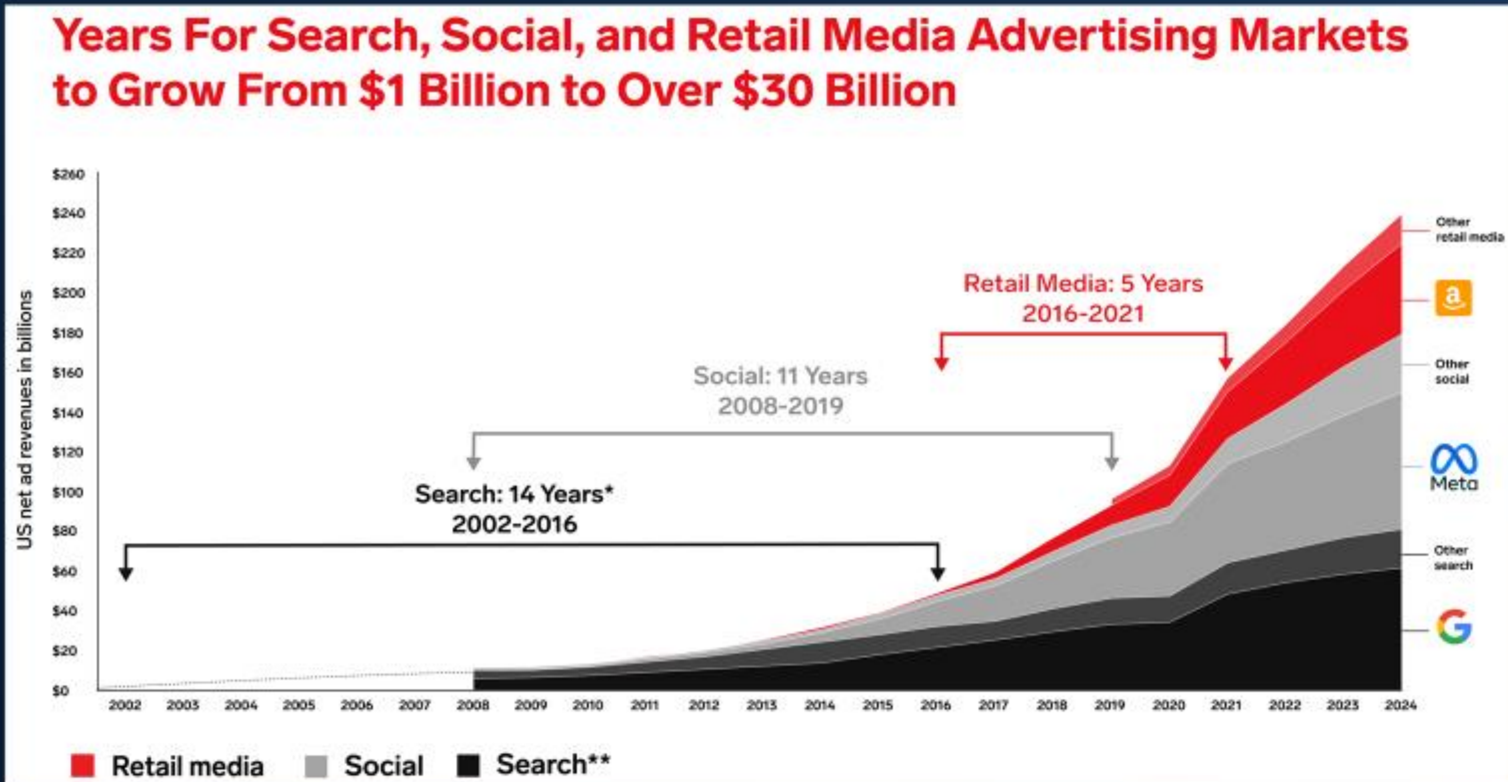
Besides the core national CTV monetization and ad serving players, we've identified 5 "intersections" that are interesting to watch. Some Ad Tech intermediaries are attracting performance advertisers (e.g. D2C brands) now that they can target audiences. Other platforms specialize in delivering CTV to local advertisers, often leveraging the large salesforces of local TV broadcasters. Other interesting intersections exist with Commerce Media and Gaming. Perhaps the most significant source of CTV ad inventory has come from the hardware and software firms that facilitate distribution. From OEM and dongle makers to the middleware firms and content aggregators, these intermediaries are helping fuel the enormous growth of CTV advertising with AVOD and FAST models.

The accelerating shift from linear to streaming is forcing media companies to adapt to a different business model, which for most players implies substantially worse economics than the cable bundle. Their massive investment to launch streaming channels is creating billions in losses, even for the most successful of firms as evidenced by their stock price volatility. We believe this will invariably lead to further media consolidation.

COMMERCE MEDIA

			CTV	COMMERCE MEDIA	AUDIO
CONSUMER ADOPTION	✓	✓	✓	✓	
DATA / IDENTITY	✓	✓	✓	✓	
AUTOMATION + PERFORMANCE	✓	✓	✓	✓	

Retail Media is Scaling Faster than Previous Mega-trends

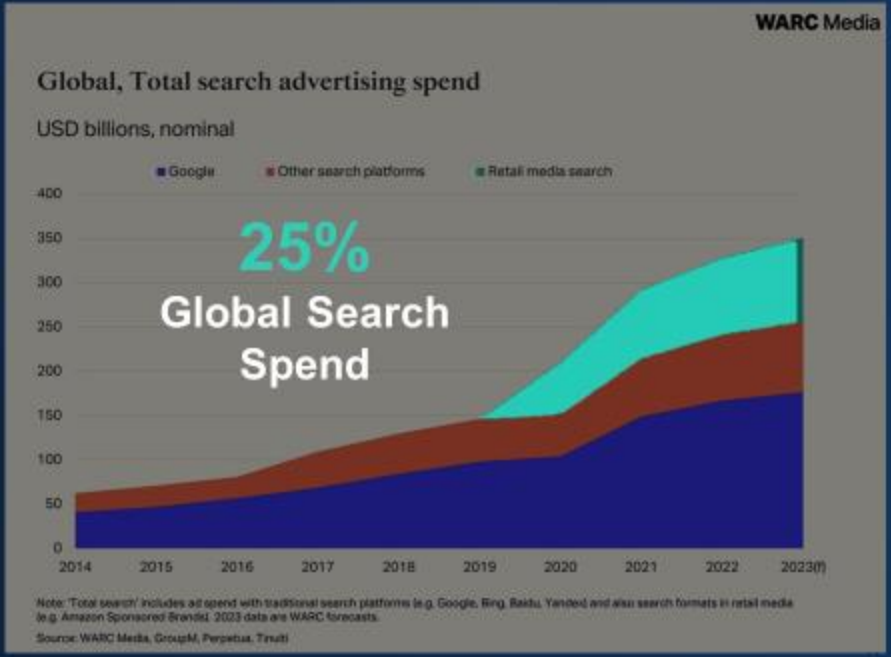


Over the last few years, Retail Media has become one of the hottest sub-categories in the digital advertising ecosystem, and when you look at the spend, it's no wonder why. Retail Media has become the fastest scaling digital channel ever - growing from $1bn - $30bn in ~5 years. This is in comparison to Search & Social advertising, which took 14 years (~3x retail media) and 11 years (~2x retail media), respectively, to reach that milestone. This is in large part due to the explosive growth of Amazon Ads, though many other large retailers and platforms have added substantial spend over the last few years.

Retail Media Starts with Search

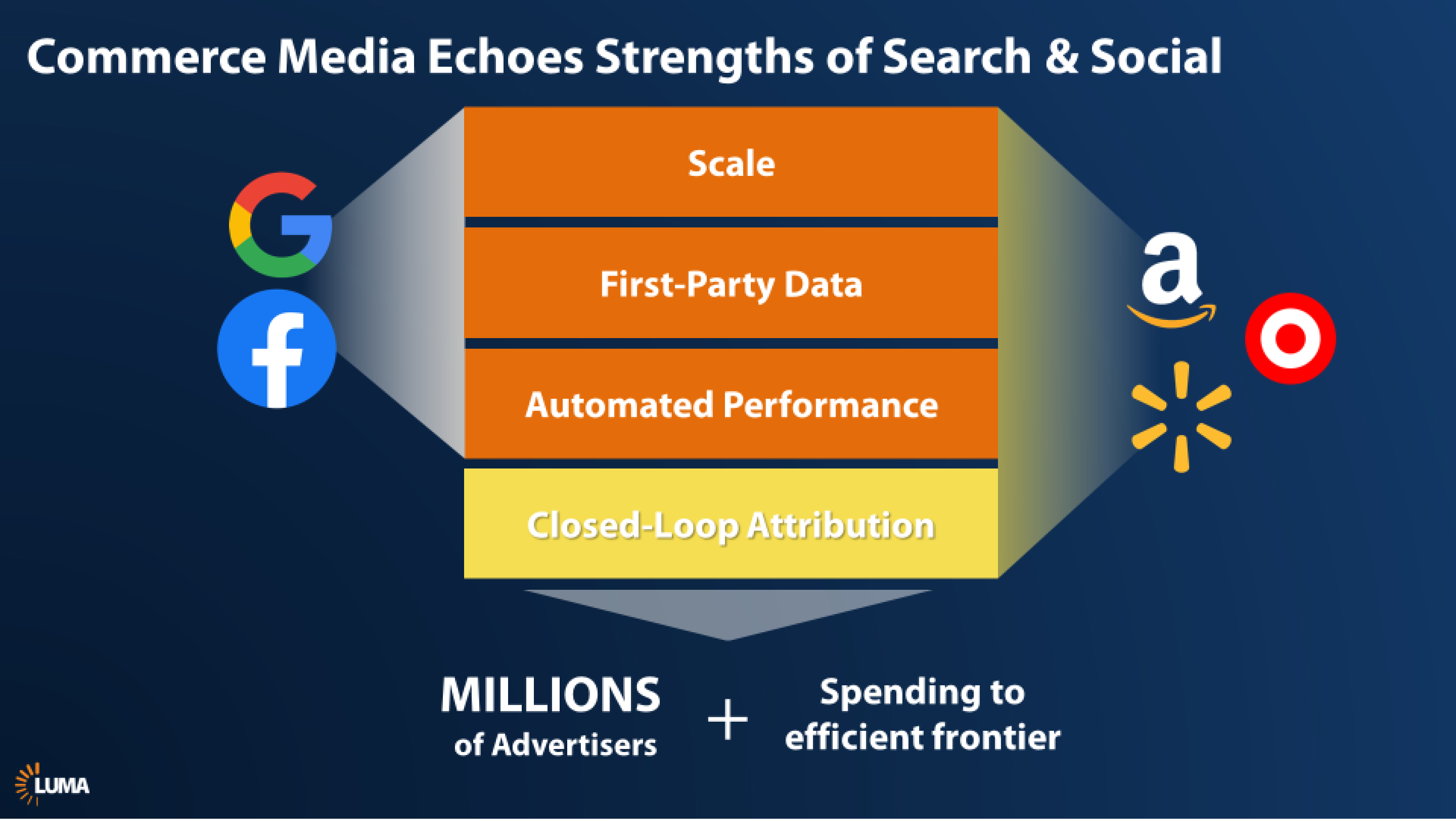
2017

55% of shoppers start on Amazon

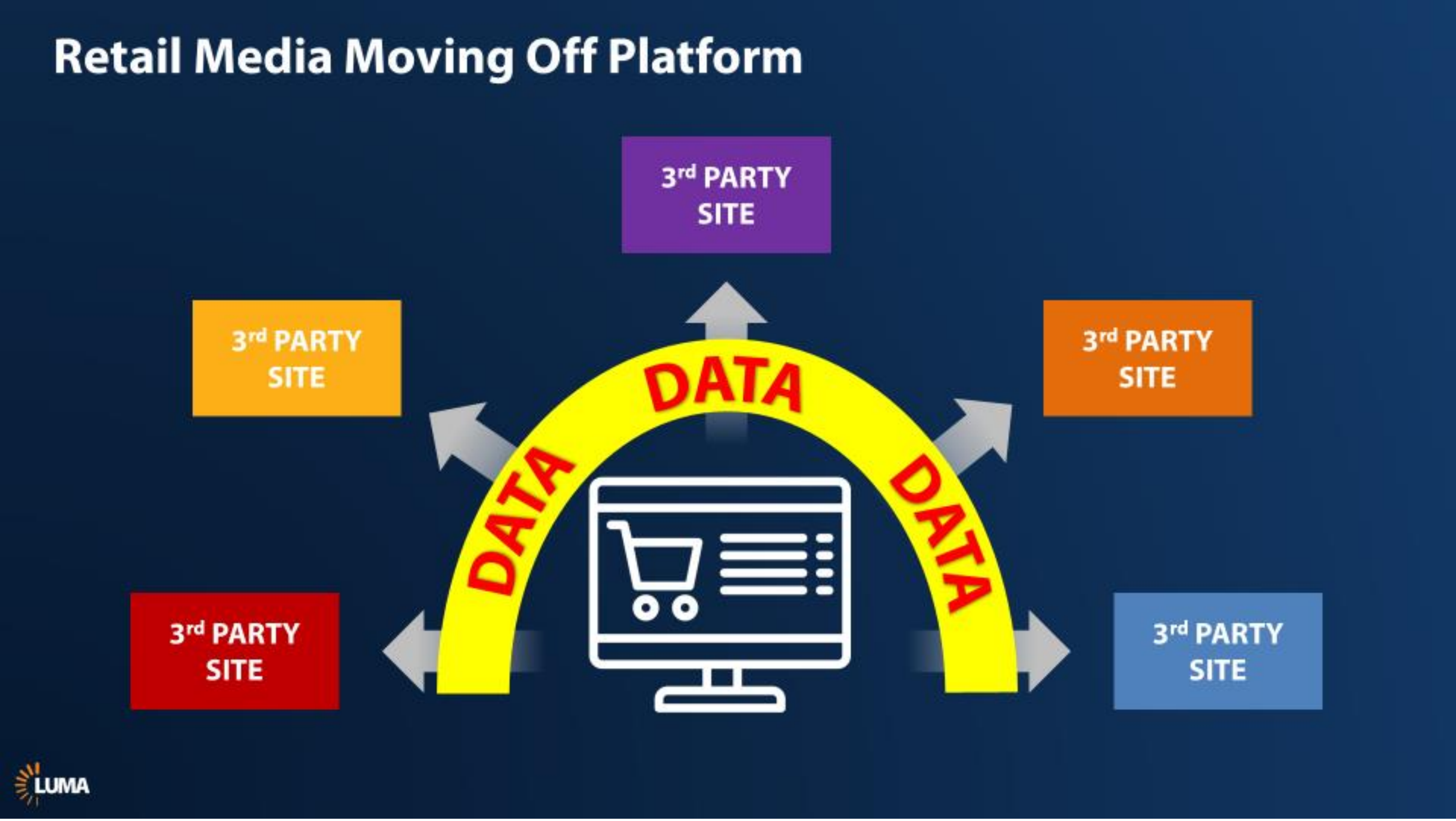


LUMA

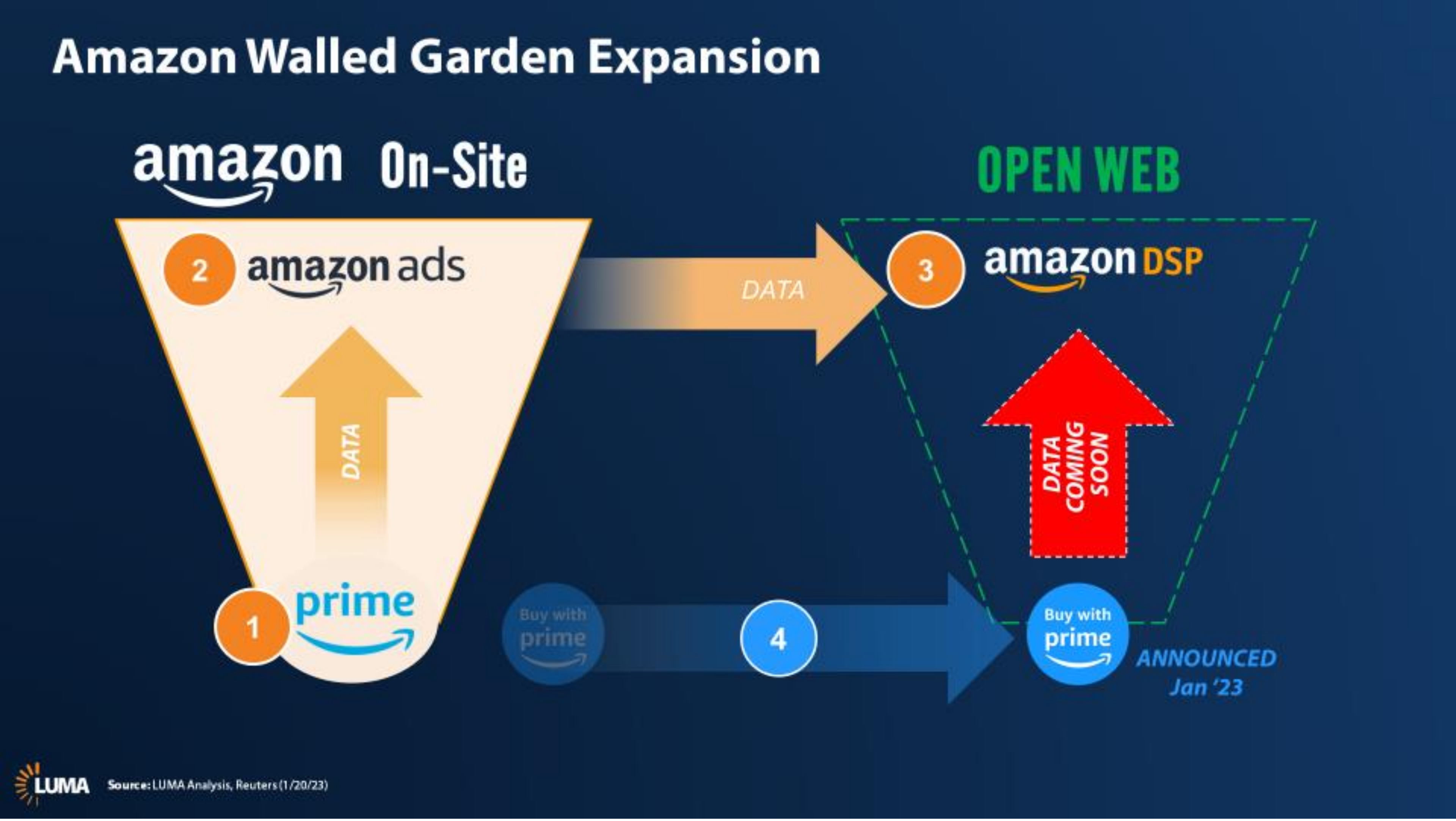
As with the other channels, retail media started with consumer adoption, which came in the form of search. Long before we talked about the scale of Amazon's advertising platform, we talked about the fact that over half of digital shoppers started their commerce search on Amazon. This meant that Amazon owned both the customer relationships and the intent signals, making it a natural advertising opportunity. As of today, this consumer habit of either starting or continuing search on retail platforms has led to a massive share of the global search market. According to WARC Media, Retail Media will represent about 25% of the global search spend. Incredibly, for now this is incremental search spend, as Google's ad spend has continued to incrementally grow.



In last year's State of Digital, we introduced the concept of Commerce Media echoing the strengths of Search and Social, by combining scale of consumers, robust first-party data, and automated performance, but doing so with this added benefit of endemic, "closed-loop attribution". This last part is critical and is an important part of commerce media's rise and opportunity, particularly in an era of signal loss. While Google and Meta have historically been able to "close the loop" by accessing data and APIs this has become harder to do. Meanwhile, the commerce platforms own this signal inherently, as well as all other consumer signals when at the purchase moment, which all allow for increased performance.



With this unique data proposition, many Retail Media platforms are now taking the next step in their media evolution, allowing marketers to target their audiences off platform. As third-party data becomes harder to use, these unique, first-party data signals have become more valuable, and given the consumer scale of many retail platforms, they are sitting in a prime position to fill this void. Note that in most cases, these moves are combined with technology / data partnerships, as most platforms will not need to own the technology, and data collaboration platforms will be required to sit in the middle to connect all sides, while maintaining data protection.

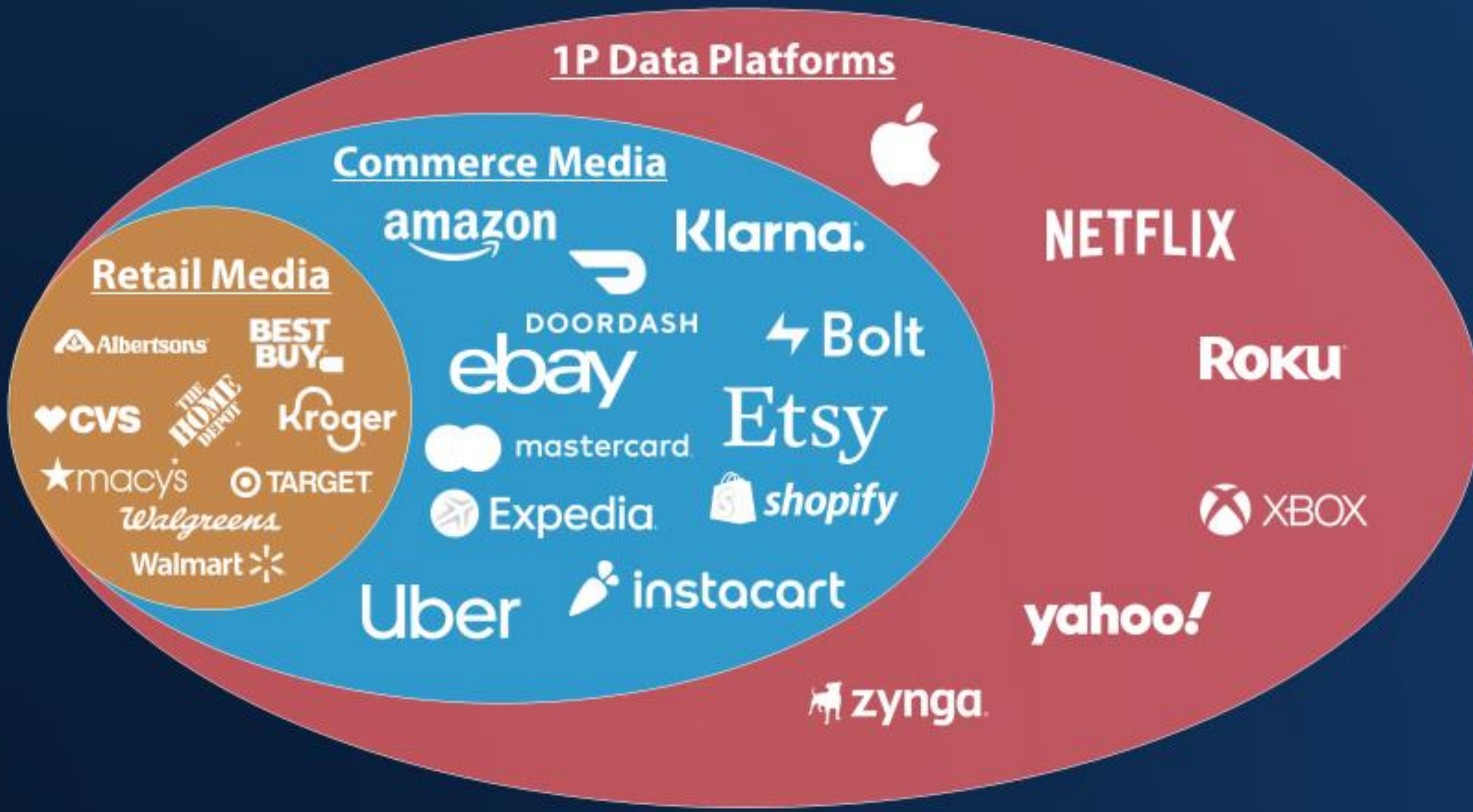


Amazon has been leading the way here and continues to make moves to expand it's media reach and data flywheel. If you think about the Amazon media journey, it started with (1) Amazon Prime at the bottom of the funnel to capture consumer data. (2) After creating an incredible user experience Amazon moved up-funnel, launching Amazon Ads on the site. (3) A few years ago, Amazon acquired Sizmek and launched the Amazon DSP, to own the off-site media opportunity. (4) Finally, last year Amazon launched "Buy with Prime", allowing merchants to provide the Prime logistics / experience to consumers when they are shopping off of Amazon. While the stated goal of this initiative is focused on the logistics, it is also an incredibly powerful data signal that will no doubt inform Amazon's ad tech strategy. In all these moves, Amazon is much more focused on being a platform for merchants vs. the merchandiser themselves.

LUMA

Amazon is not alone this respect. Over the last few years, Walmart has made a number of moves that have shifted it away from being a merchant and moved it closer to a platform. For example, Walmart finally began to open its ecommerce business to more third-party sellers, moving from a few thousand to hundreds of thousands of merchants leveraging the platform in only a few months. Additionally, Walmart has begun to license it's technology, infrastructure and logistics capabilities to other retail platforms, including announcing a partnership with Salesforce to drive this initiative. These types of changes have become so powerful, that the Company's CFO recently conveyed that in the next 5 years, Walmart could see more profits from the sale of ads and services than from sale of merchandise in its 10,000 stores.

Retail Media is the Tip of the Spear

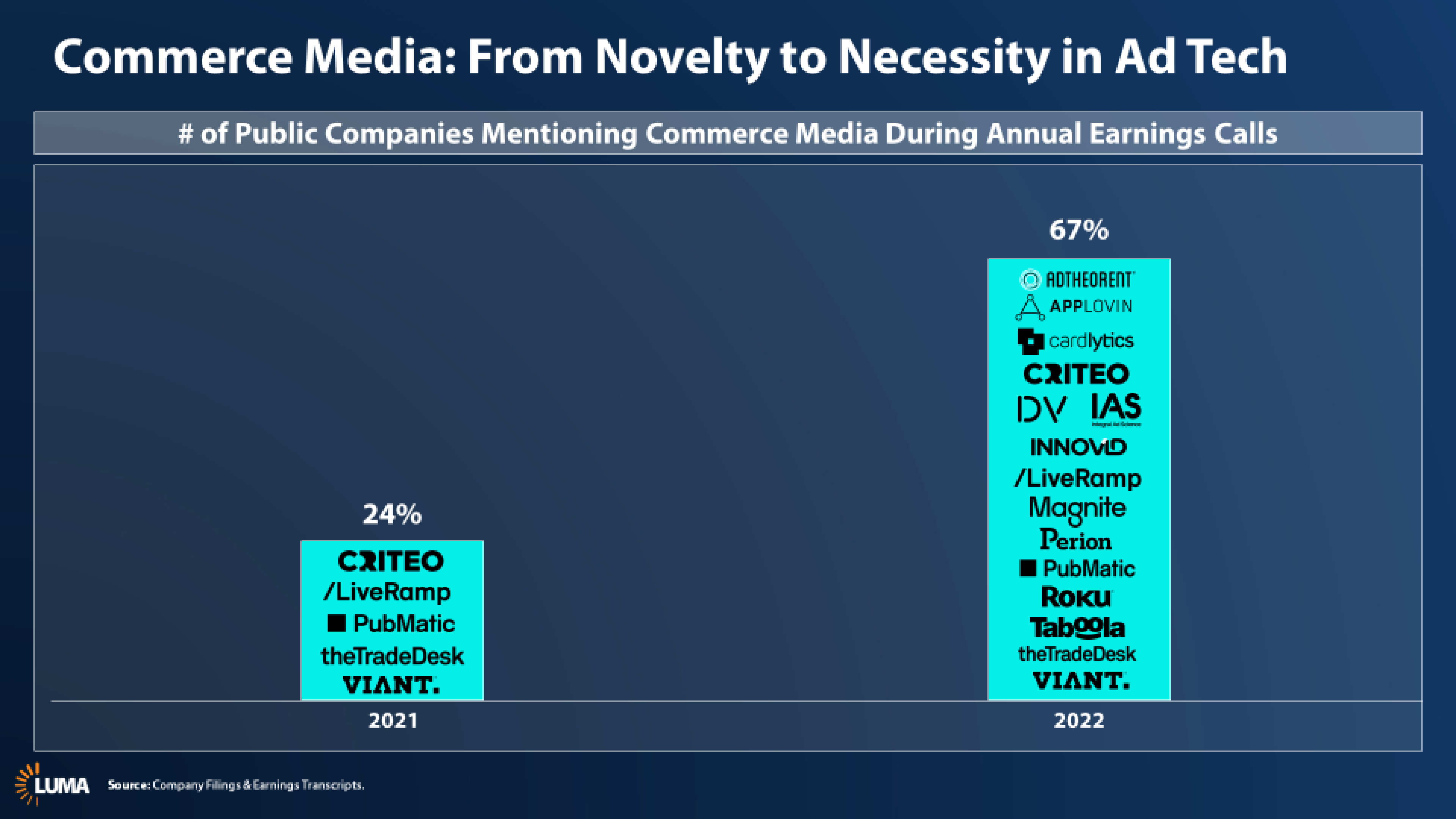


LUMA

We view Retail Media as the tip of the spear in the context of a much larger ecosystem of 1P data platforms. Ultimately, Retail businesses are the highest incentivized to move quickly in the advertising world given it's such a low-hanging fruit means of generating high-margin revenue growth for a slower-growing, low margin business model. That said, the broader "Commerce Media" platforms have a huge opportunity to play, particularly in off-site activations, as they bringer an even broader view of transaction data.

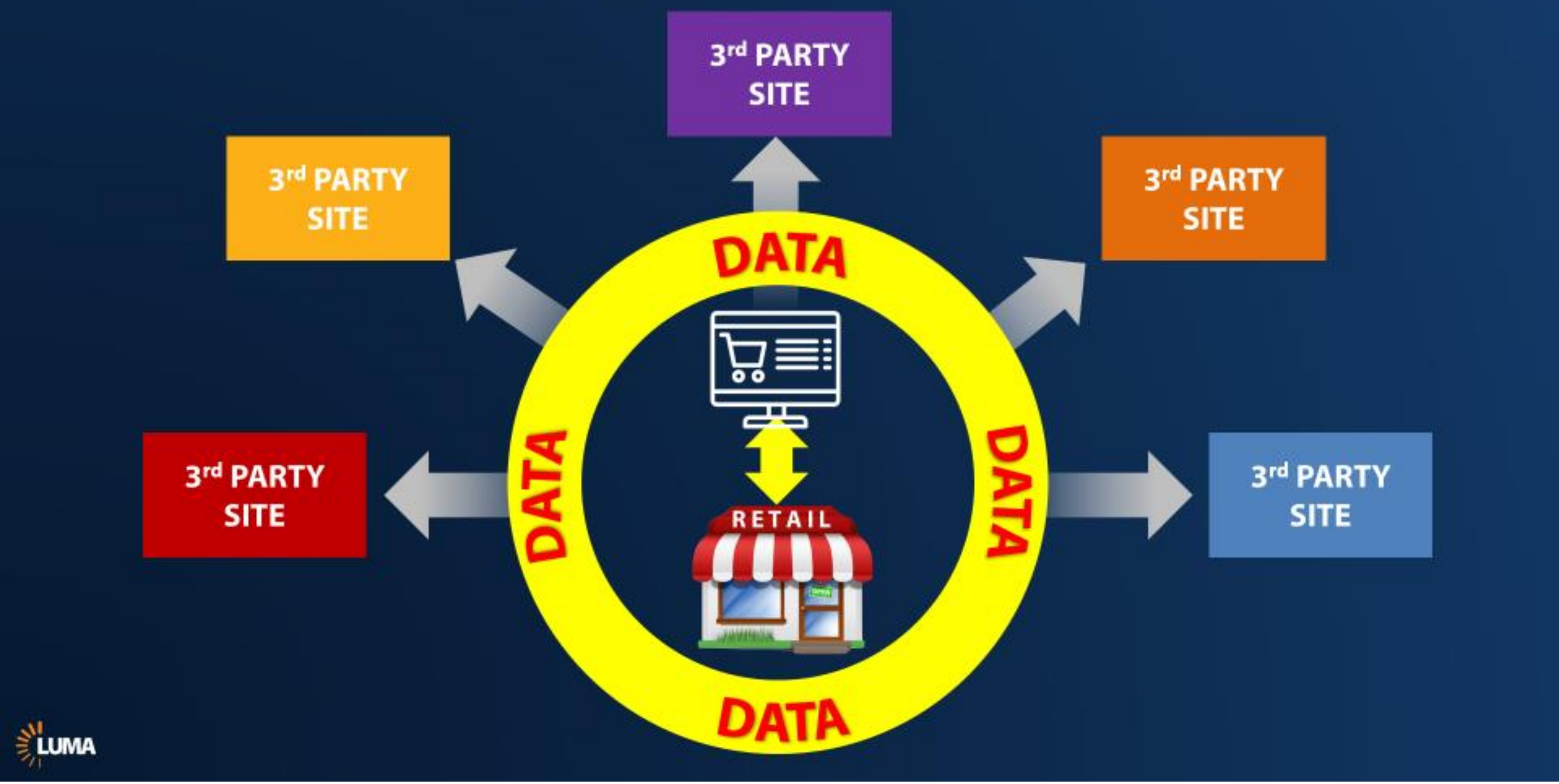
These platforms cannot be built over-night and, in a vacuum, thus requiring significant collaboration with industry constituents to drive performant, data-driven advertising at scale. Numerous partnerships announced over the past several months, reflecting an ecosystem of collaboration to drive these results and build a vibrant industry. Above a just a small sample of recent announcements, that all happened to occur a few days apart from each other.

LUMA

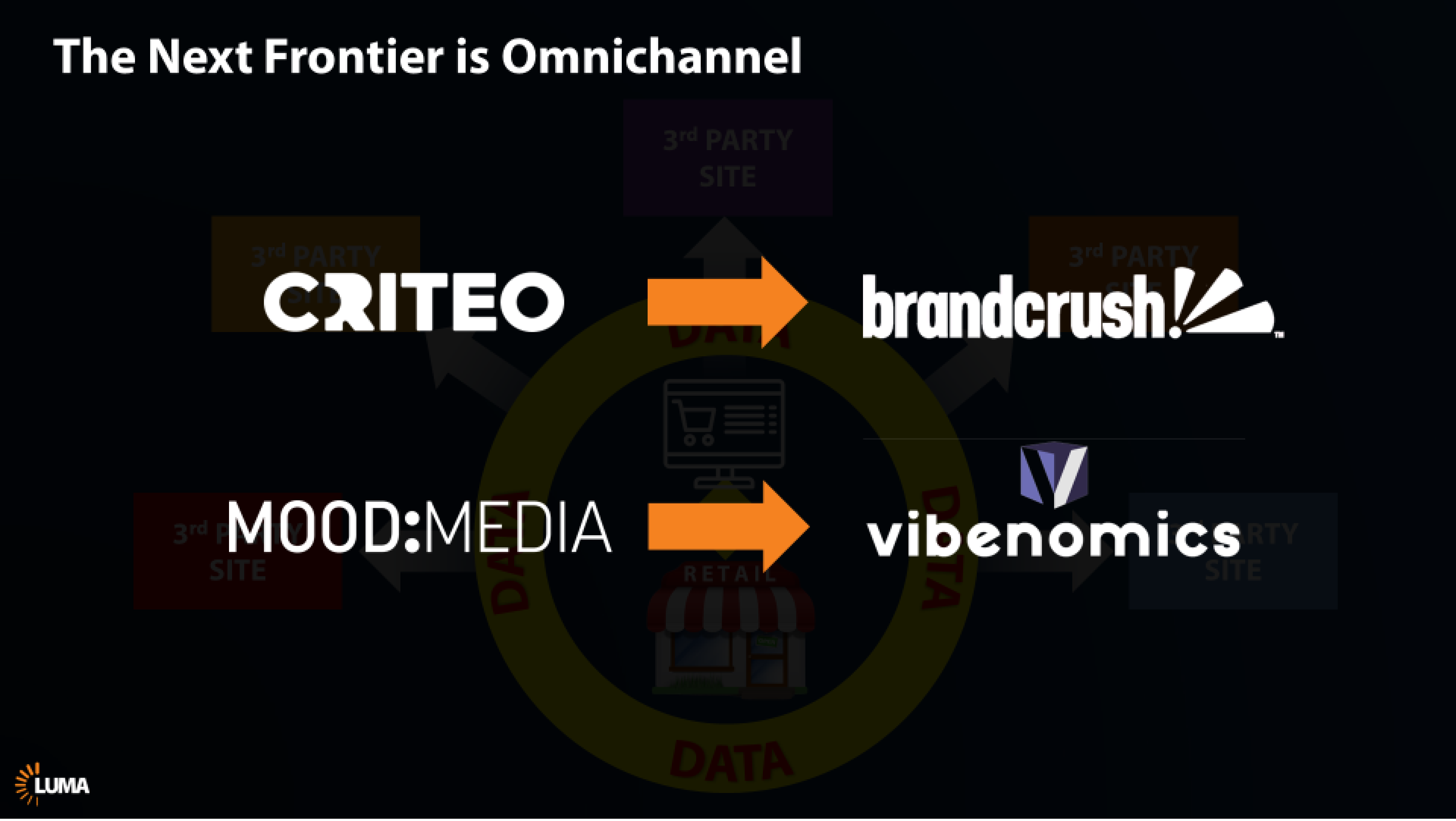


The firms that will help these first-party data owners build their platforms understand the importance of this channel to their businesses' viability. Examining the most recent annual earnings calls from across Public Ad Tech companies, two-thirds of companies referenced Commerce Media, indicating this is not just critical internally for their businesses' growth but critical for the Street's understanding of their growth.

The Next Frontier is Omnichannel Commerce

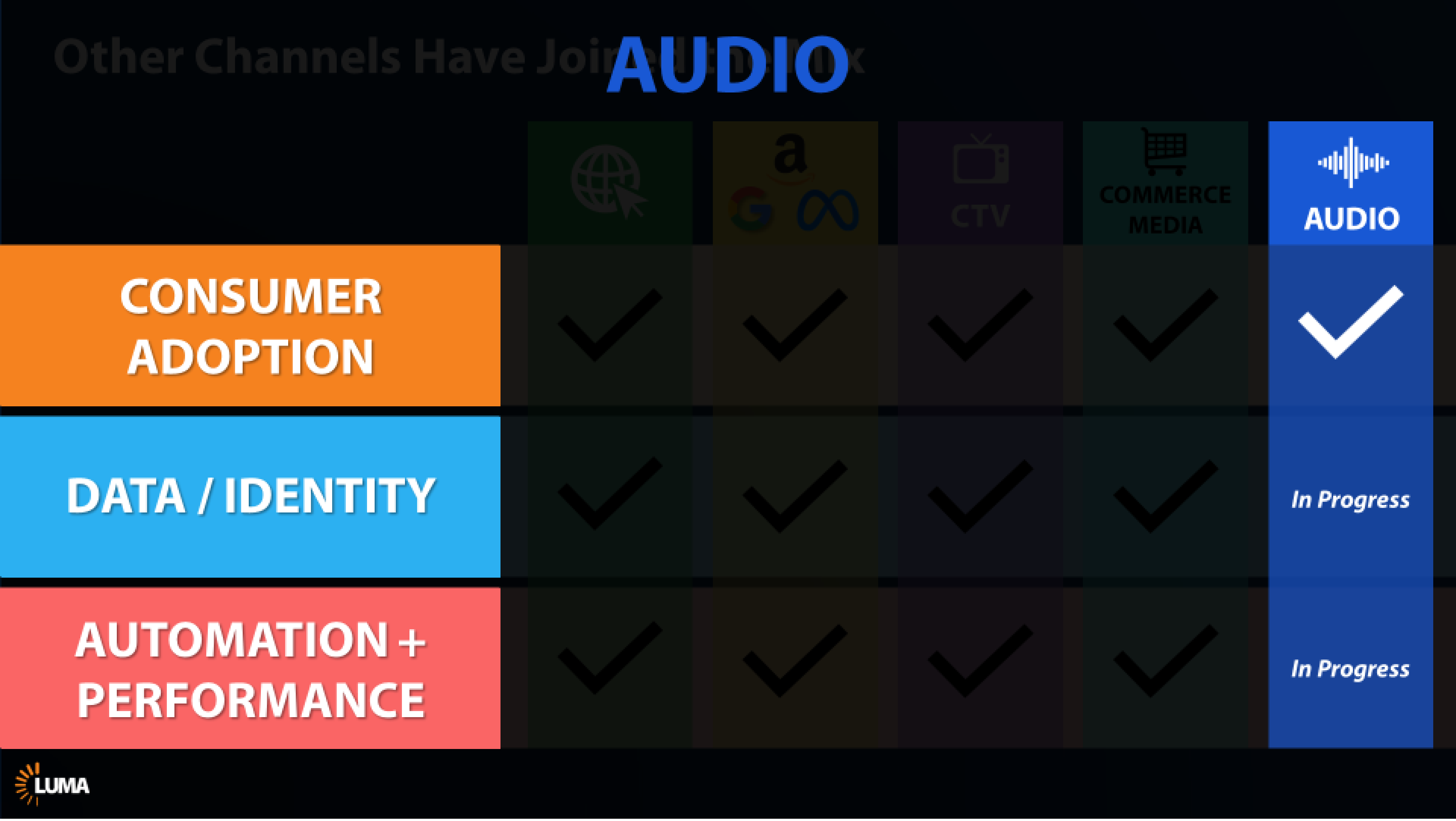


While much of the focus in commerce media is on platforms' digital properties, the next frontier in this ecosystem is incorporating in-person commerce. For most of the retail platforms entering the advertising market, in-store represents the majority of the customer engagements and transactions. This represents significant opportunities to both monetize those customers while in-store, as well as the attribute in-store actions to online behaviors, further expanding the off-site opportunity.

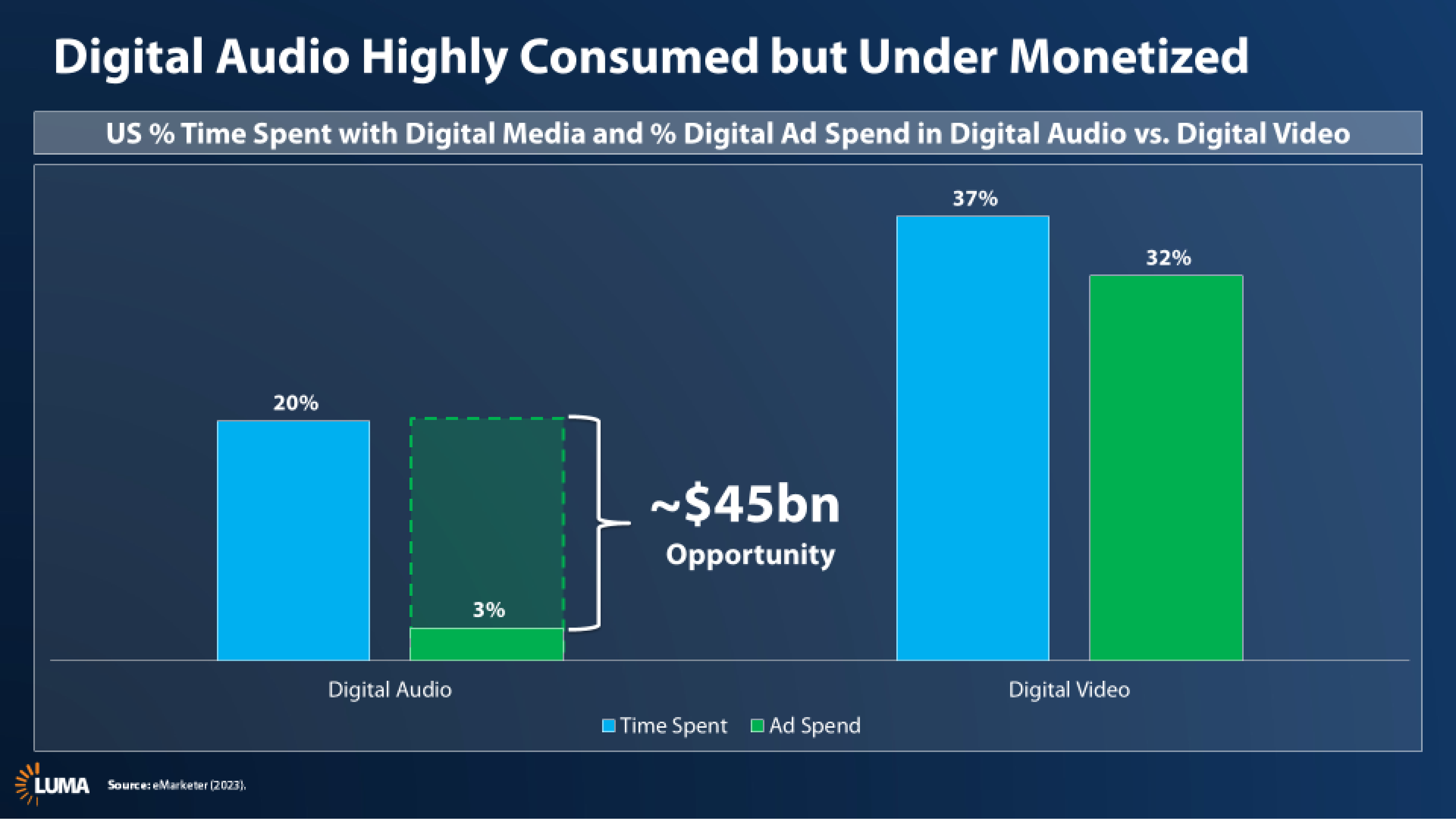


A few recent transactions reflect this trend - namely Criteo's acquisition of Brandcrush, an omnichannel (in-store, in-home, online) marketing platform, and Mood Media's acquisition of Vibenomics, an in-store ad network.

LUMA

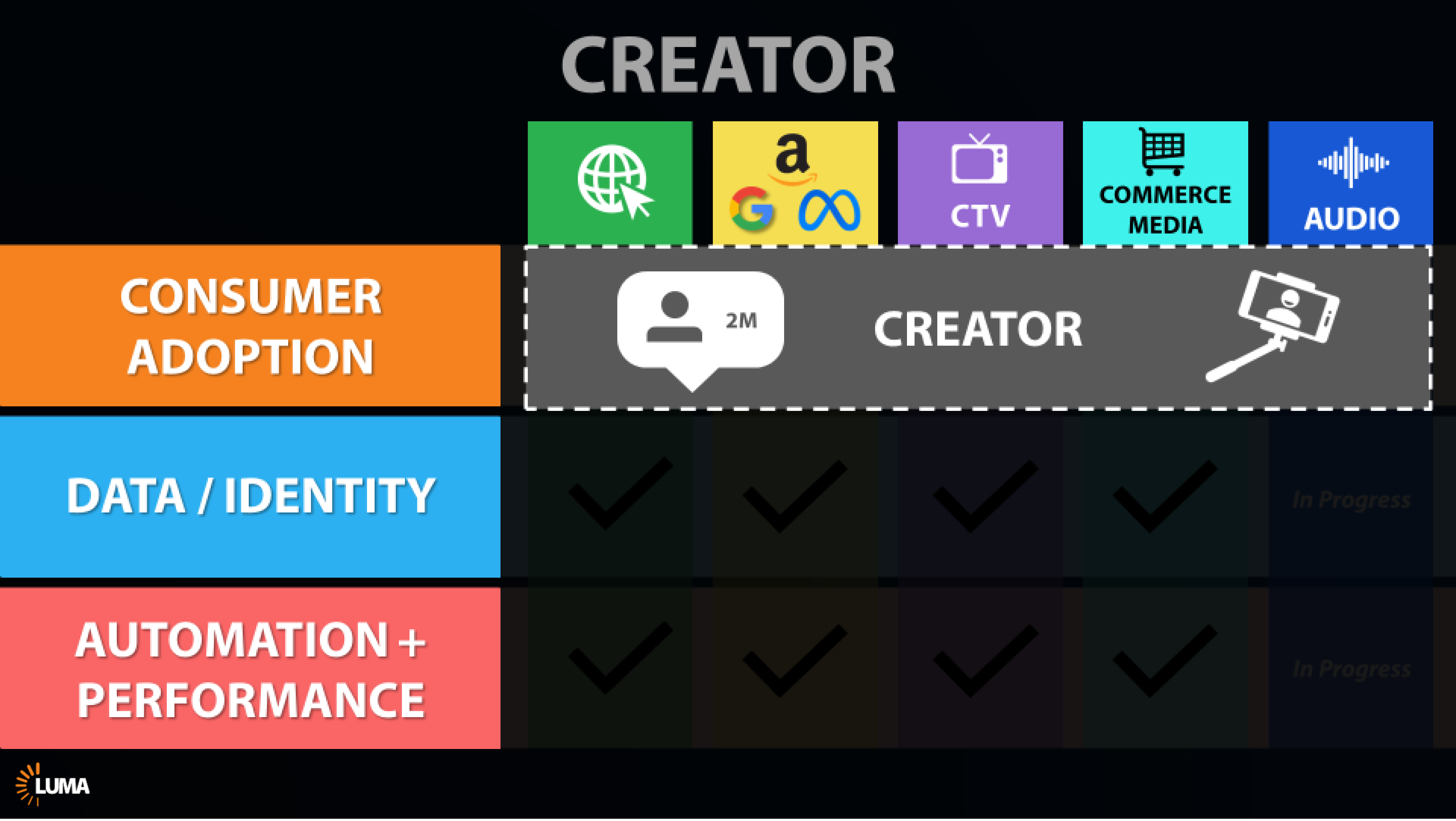


The last intersection we see in the next era of Ad Tech is within Audio. This medium is, however, quite different from CTV and Commerce Media insofar as it has generated a significant amount of scale of listeners, but marketers are challenged to leverage the data / identity components of the listenership and the industry has yet to build meaningful performance capabilities within Audio advertising.



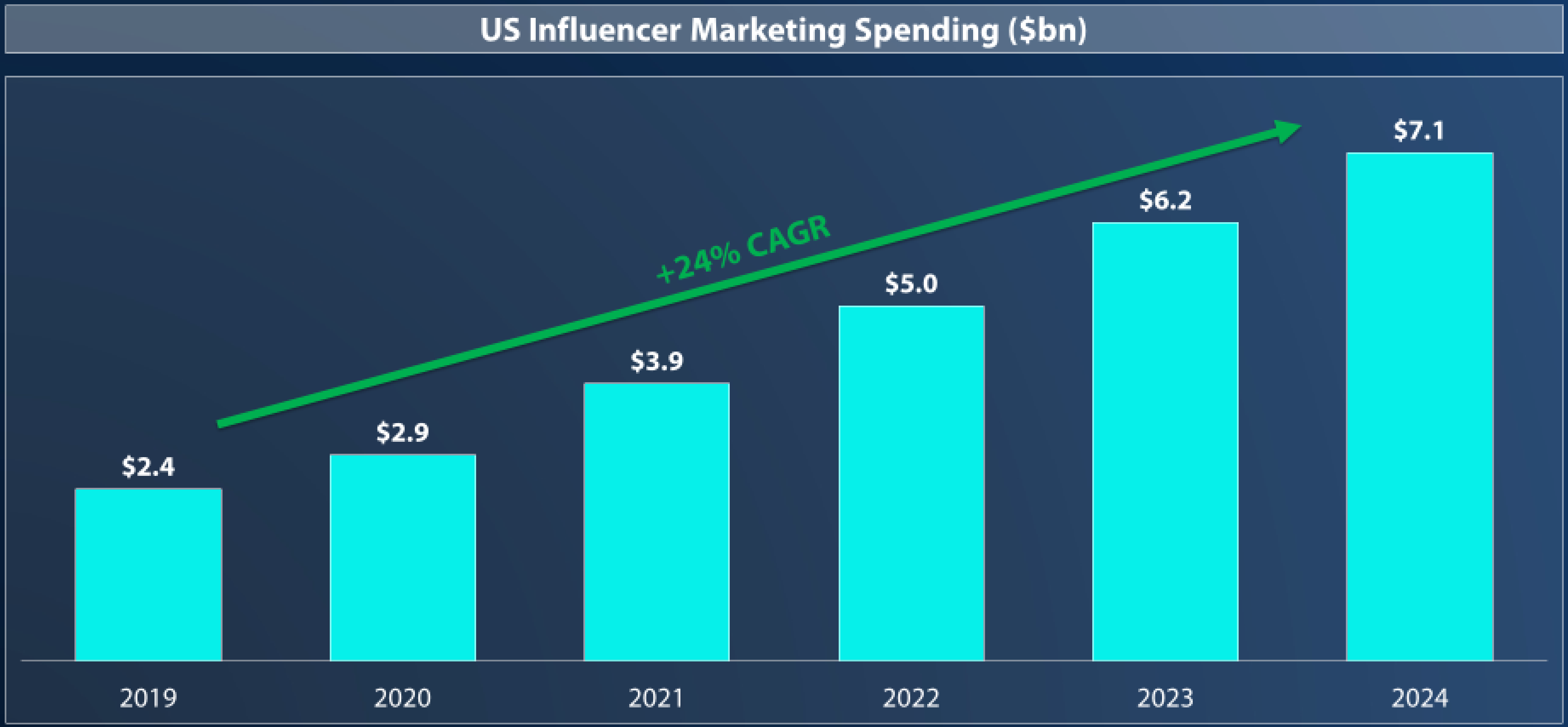
As a result of these challenges, Digital Audio is heavily under-monetized when considering the time spent with the medium. As Mary Meeker used to show in her annual reports, in nearly all mediums, the share of advertising tends to align with the share of time, as can be seen with Digital Video above. In the case of Digital Audio, matching these two could result in an incremental $45 billion of ad spend.

While Digital Audio advertising still has some challenges inherent in the medium, it is an ecosystem primarily controlled by large first-party data platforms. As we move into this next phase of the digital ecosystem, audio has a big opportunity ahead.



A growing means of reaching a mass audience of consumers across all channels is the Creator economy. In 2023, more and more emphasis is placed on the individual creator's ability to build an audience across channels (Social, Audio) and platforms (Instagram, TikTok, Spotify, Substack) that can be monetized by the Creator and marketers through sponsorships.

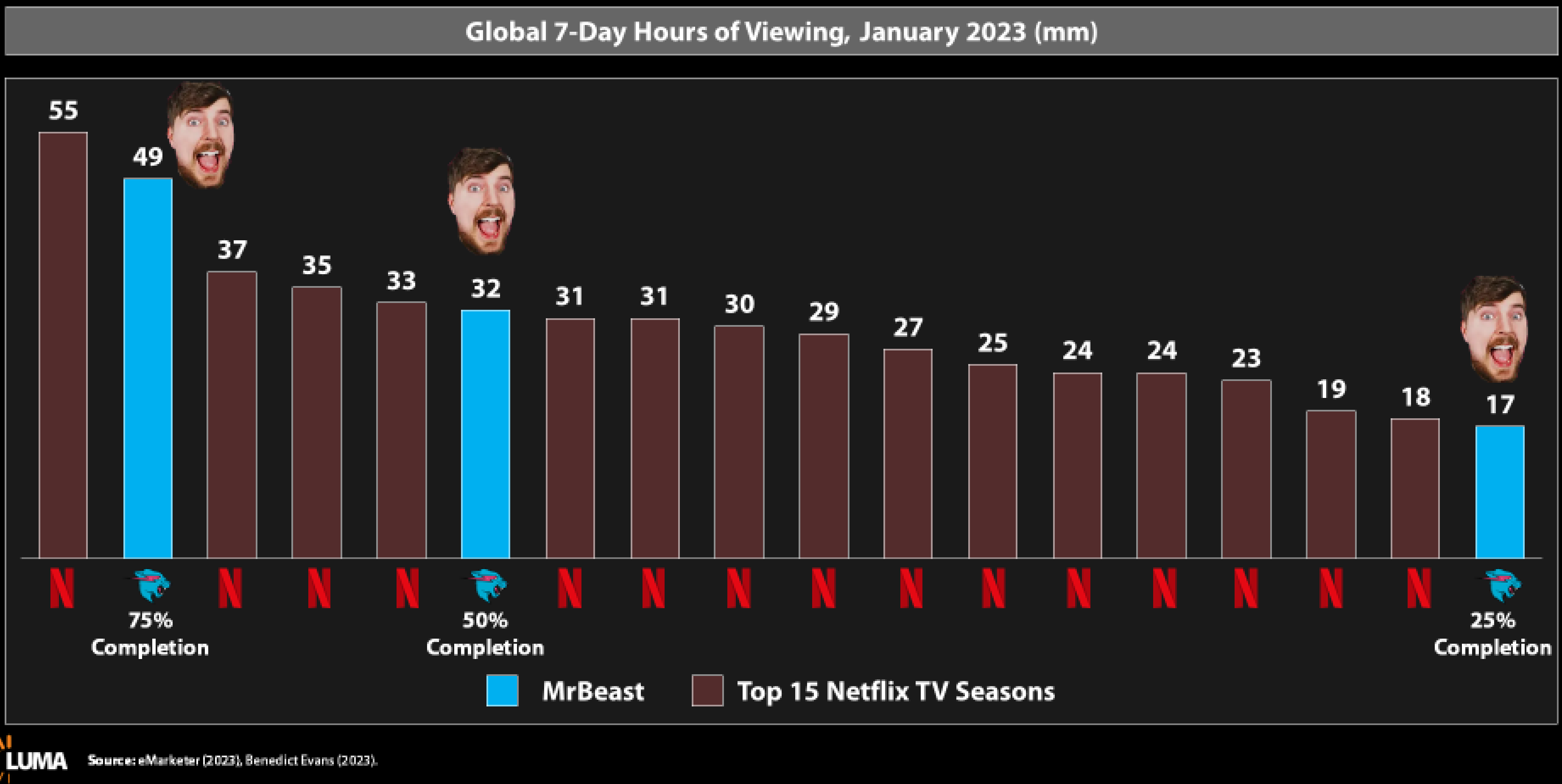
The Creator Economy & Influencer Marketing Can't Be Ignored



LUMA **Source:** eMarketer (2023).

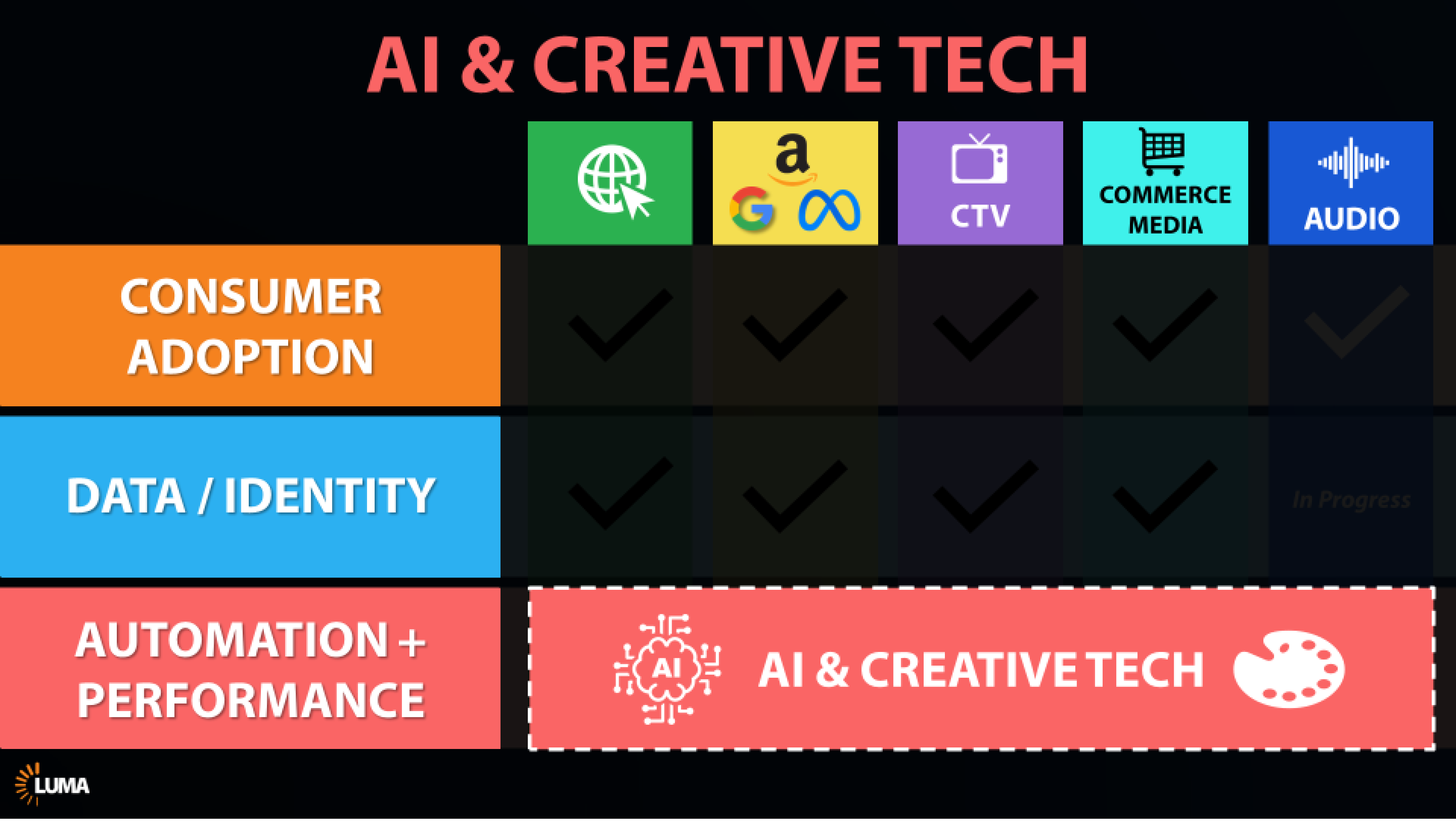
The US Influencer Marketing industry is growing rapidly and is on-pace to achieve high single-digit billion spend by the end of 2024.

The Creator Economy & Influencer Marketing Can't Be Ignored

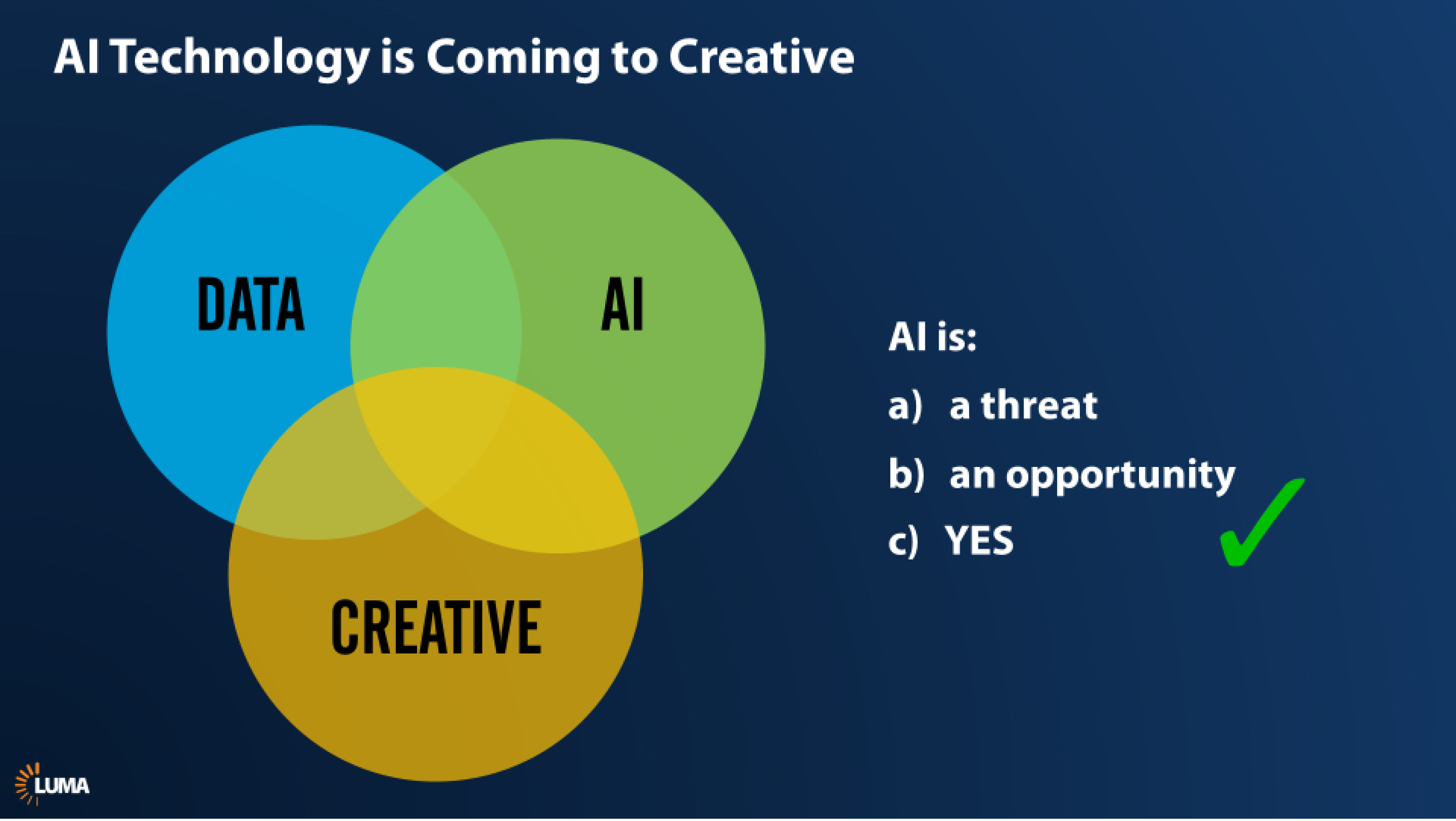


Evidence of the medium's adoption is MrBeast - whose videos with 75% completion ranked 2nd among weekly global viewership relative to Netflix's Top 15 shows.

MrBeast isn't the only example. While MrBeast is apparently looking to achieve a $1.5bn valuation for his studio and online brand, there are other creators that have managed to monetize the following they've built as brand ambassadors and content creators. A-list actor Ryan Reynolds has built meaningful stakes within MintMobile and AviationGin, representing centi-million-dollar outcomes for Reynolds following Mint's $1.4bn acquisition by T-Mobile and Aviation Gin's $410mm sale to Diageo. Similarly, Aussie fitness influencer Kayla Itsines sold her digital fitness app, Sweat, to iFit (creator of NordicTrack) for $400mm, after first building a base of followers on Instagram.



Artificial Intelligence is the talk of the town in today's media & technology landscape. With the launch of OpenAI's ChatGPT, AutoGPT, Google Bard, Adobe Firefly, Midjourney, and others, it seems evident that AI will have a massive impact on Digital Media and Marketing. While the use cases for AI are many fold, we believe an area of substantial impact is at the application of AI on Creative Technology.



AI represents both a threat and opportunity to the status quo for Creative. It presents the opportunity to use technology to autonomously generate & launch more relevant and personalized creative assets across the web - a great benefit for marketers. For traditional agencies and service providers, it could result in massive displacement of existing business models and practices.

The Industry is Obsessed with Efficiency

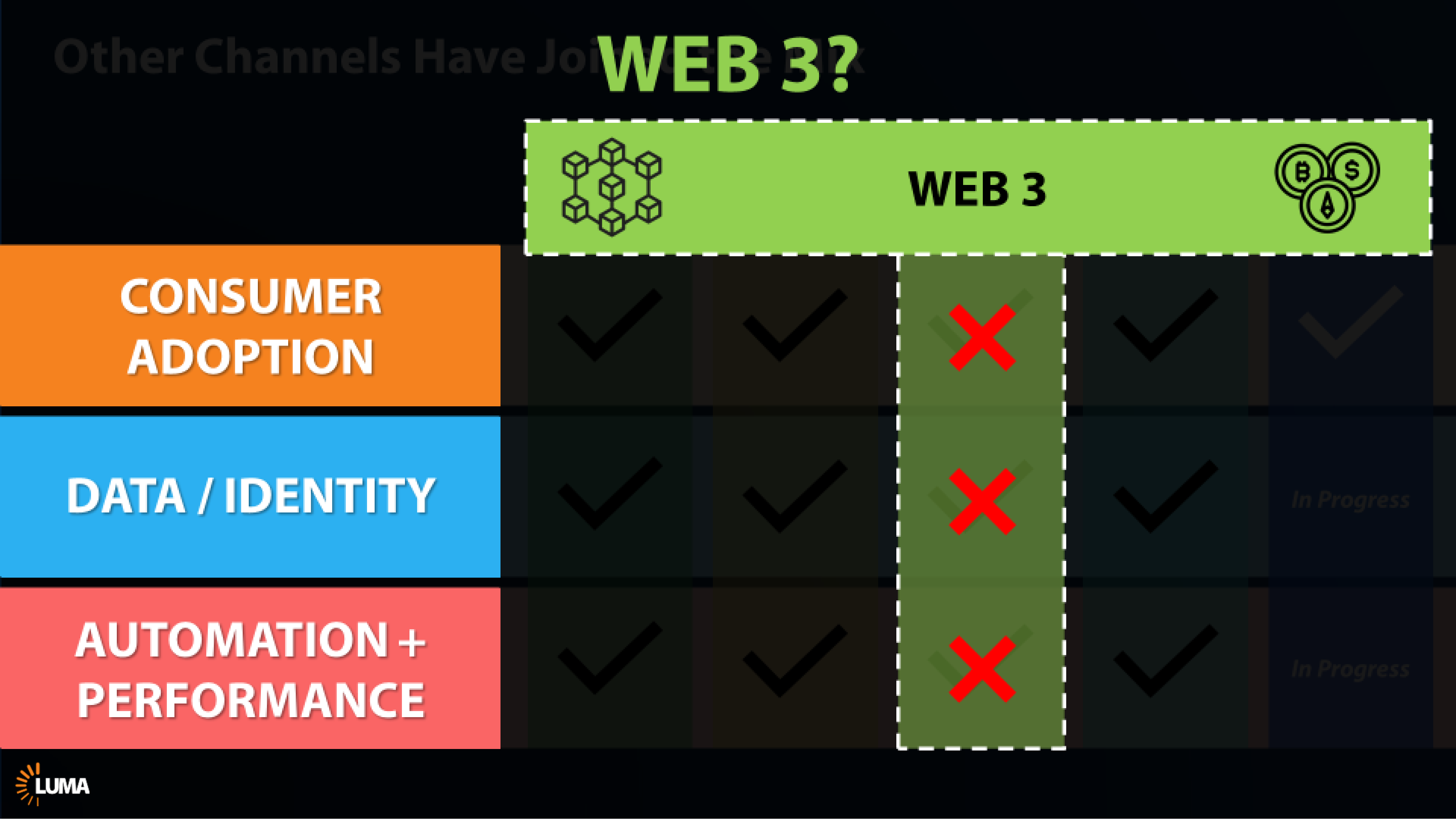
Historically, the application of technology in the advertising, media and marketing industry has been fixated on driving efficiency. Thousands of deals and billions of investment have been made in media and data solutions to marginally improve efficiency.

A wider perspective, however, reveals a far greater benefit – efficacy - that is largely driven by creative. This is the 90% of the iceberg that is hidden below the water surface. The opportunity to build better creative experiences that are more relevant to consumers and make the media and data perform better (which is the ultimate goal of the marketer).

So while Efficiency is a marginal improvement (10%), creative-driven Efficacy has a potential to change the outcome by an order of magnitude (10x). The only way to access this Efficacy benefit is via Creative Tech.

Creative Tech powered by AI can "drain the water" to allow access to advanced Efficacy solutions.

LUMA



We believe the Web3 space is massively overhyped and, in the construct of our framework, lacks consumer adoption, meaningful data / identity capabilities, or the ability to generate performance.

This unfiltered and somewhat tongue-in-cheek glossary reflects are rather pessimistic view on Web3 as a near term solution in media and marketing. We hope we are wrong as we are generally supportive of all technology innovation.

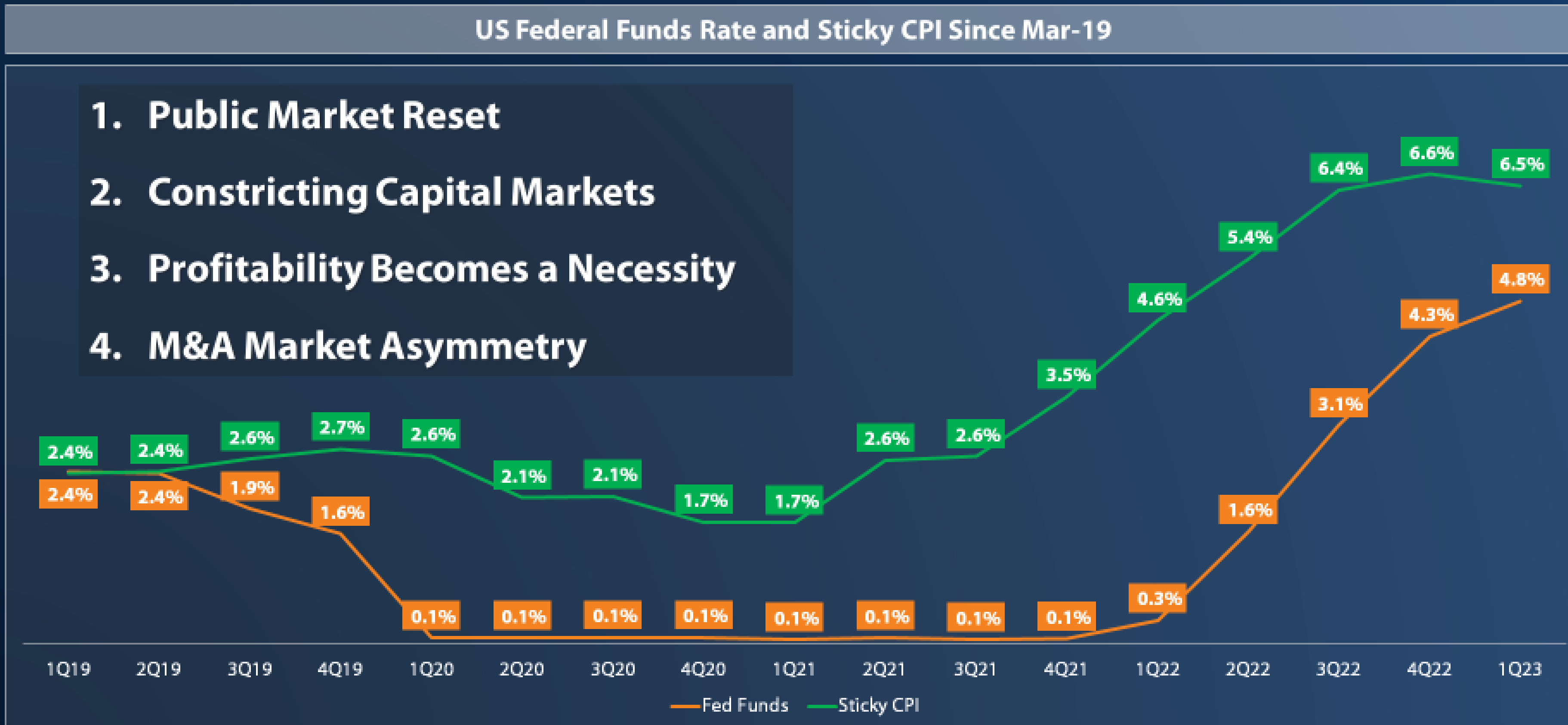
One area we are observing with hope is the use of NFTs for loyalty use cases. We believe the UX must be made simple however and observe the very limited adoption of wallets for tokenization to manifest at scale.

At LUMA, we pride ourselves on our ability to remain objectively credible and call things as we see them. To-date, we've discussed the provenance of the most important channels and technologies in our industry - Programmatic, CTV, Commerce Media, and AI (strikes). We also do not pull punches when declaring areas that we don't believe will drive meaningful change – for example: 5G and Web3 (balls).

We're also fans of OOH ads with great creative copy!

LUMA

In 2023 – Rising Interest Rates Have Implications:



LUMA Source: FRED

Since 2020, the market has experienced both all-time highs and historical collapses in the face of COVID-19, subsequent near-zero rate reductions & massive stimulus, rampant inflation, and recently rapid rate hikes. The convergence of these dynamics are demonstrated via four critical trends:

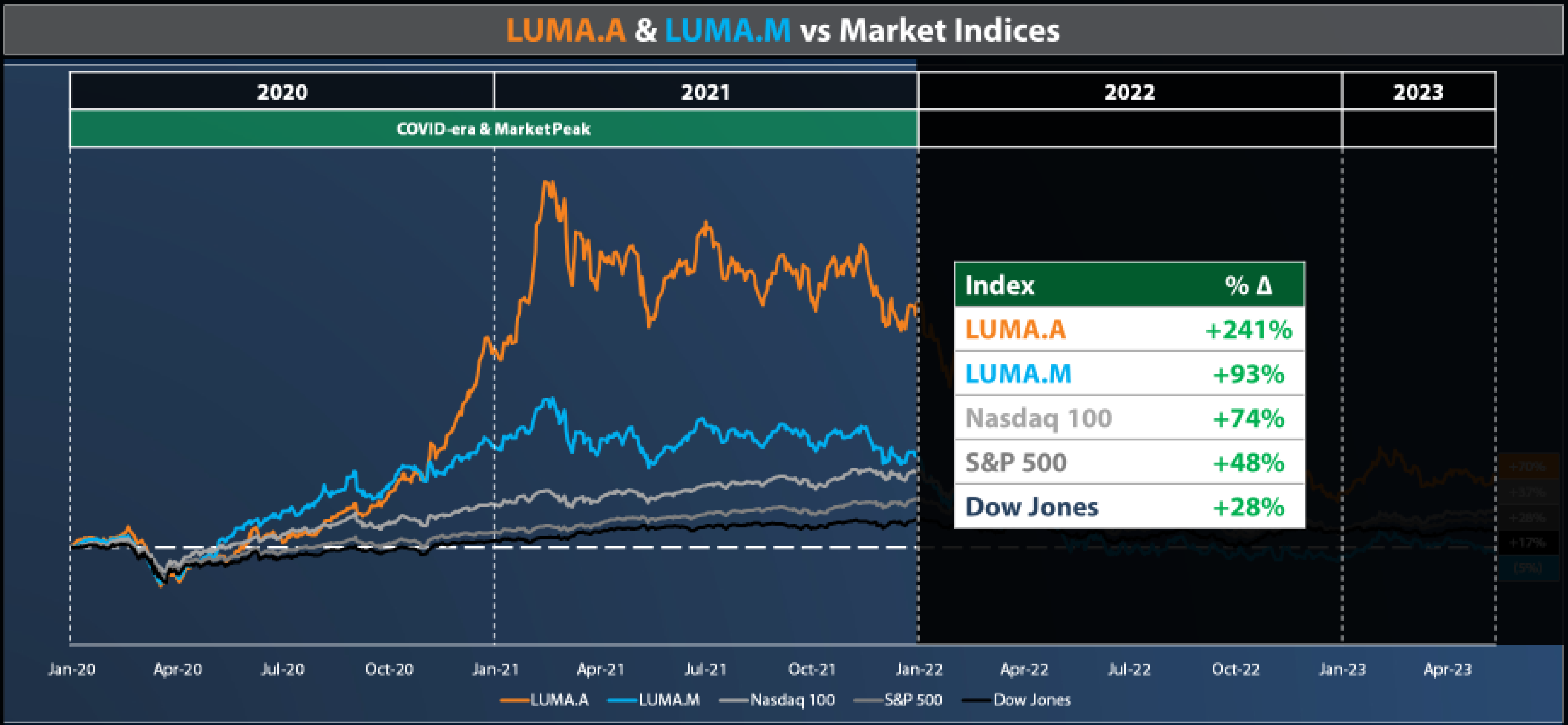
1. A reset within the public equity markets
2. A challenged public & private financing market for technology companies
3. An emphasis on profitability (vs. outside capital) as a means of financing operations
4. Asymmetry in M&A markets as buyer and seller value expectations differ

Market Has Experienced Significant Volatility Since '20

LUMA.A & LUMA.M vs Market Indices

Source: FactSet (market data as of 5/12/23). **Notes:** Chart depicts % changes in indices re-based to 10,000bps as of Jan 1, 2020. LUMA.A and LUMA.M indices are rebalanced daily.

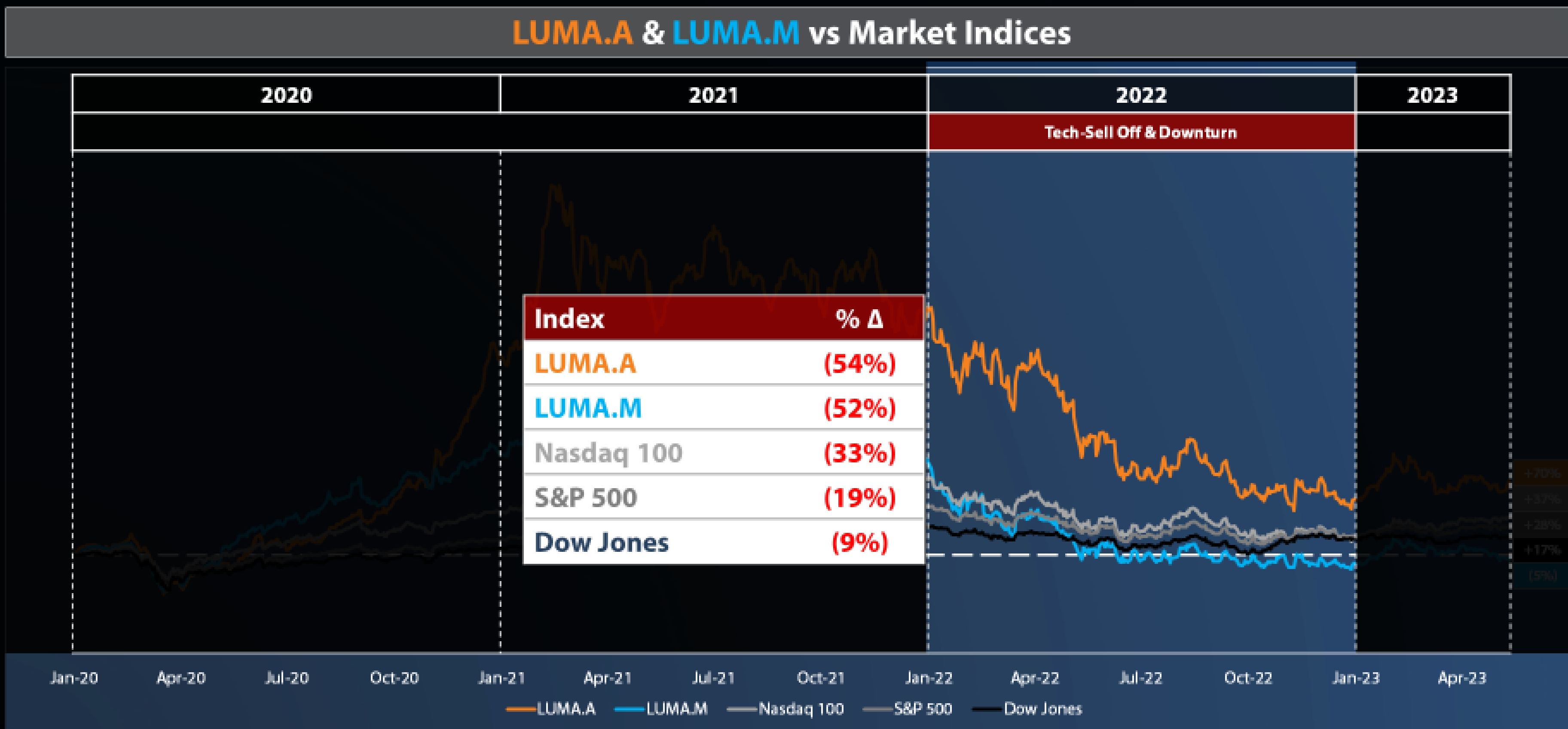
Market Has Experienced Significant Volatility Since '20



Source: FactSet (market data as of 5/12/23). **Notes:** Chart depicts % changes in indices re-based to 10,000bps as of Jan 1, 2020. LUMA.A and LUMA.M indices are rebalanced daily.

In the 18 months following the beginning of the COVID-19 pandemic, the market reached all-time highs on the heels of ZIRP and federal stimulus. The rising tide of the "Free Money" market lifted all boats - and the LUMA.A and LUMA.M exploded in market value.

Market Has Experienced Significant Volatility Since '20

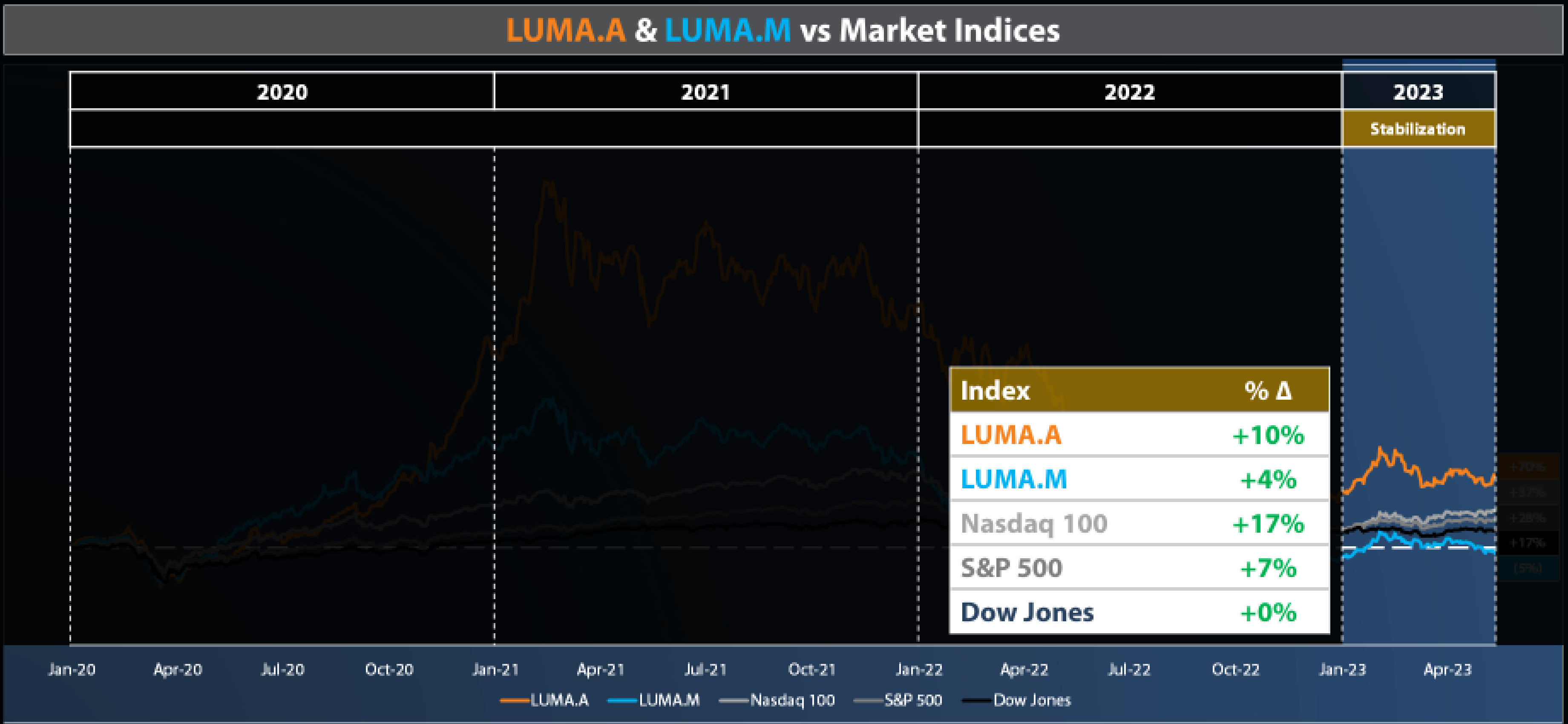


Index	% Δ
LUMA.A	(54%)
LUMA.M	(52%)
Nasdaq 100	(33%)
S&P 500	(19%)
Dow Jones	(9%)

Source: FactSet (market data as of 5/12/23). **Notes:** Chart depicts % changes in indices re-based to 10,000bps as of Jan 1, 2020. LUMA.A and LUMA.M indices are rebalanced daily.

This free money was not as free as many thought, however, and inflation proved not as transitory as the Fed anticipated. In the face of sticky and persistent inflation, the Fed began rapidly and drastically hiking rates. Meanwhile, the public companies that benefited most from ZIRP - the tech companies - experienced sell-offs en-masse.

Market Has Experienced Significant Volatility Since '20



Index	% Δ
LUMA.A	+10%
LUMA.M	+4%
Nasdaq 100	+17%
S&P 500	+7%
Dow Jones	+0%

LUMA **Source:** FactSet (market data as of 5/12/23). **Notes:** Chart depicts % changes in indices re-based to 10,000bps as of Jan 1, 2020. LUMA.A and LUMA.M indices are rebalanced daily.

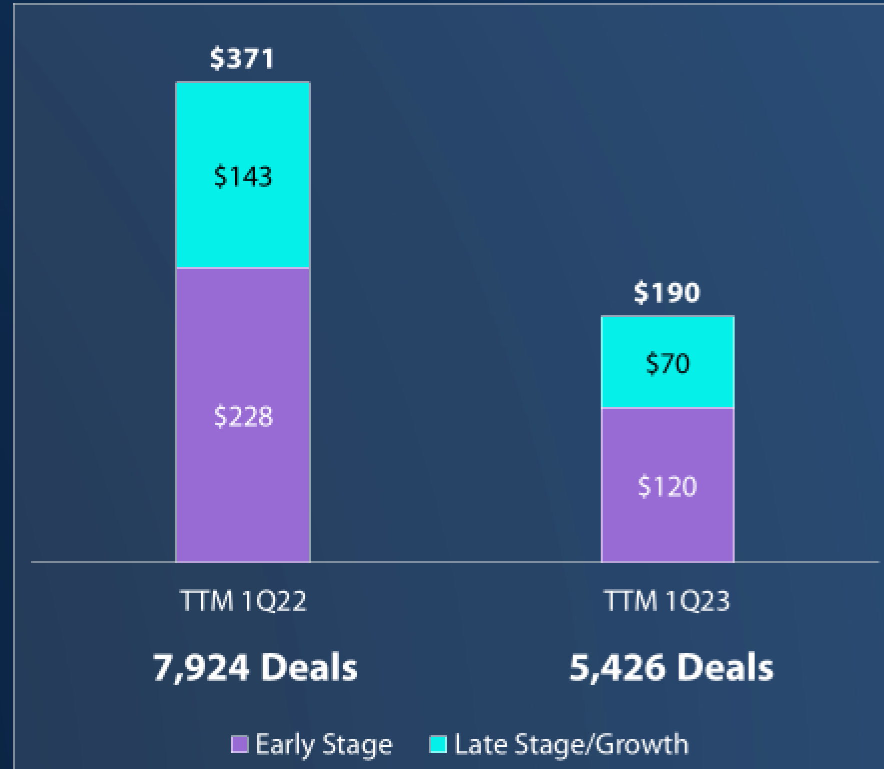
Almost half-way through 2023, we have achieved some level of growth in the public markets. Despite the regional banking crisis and other potential global economic headwinds, technology companies have experienced above-market value appreciation thus far in 2023.

Constricting Public and Private Capital Markets

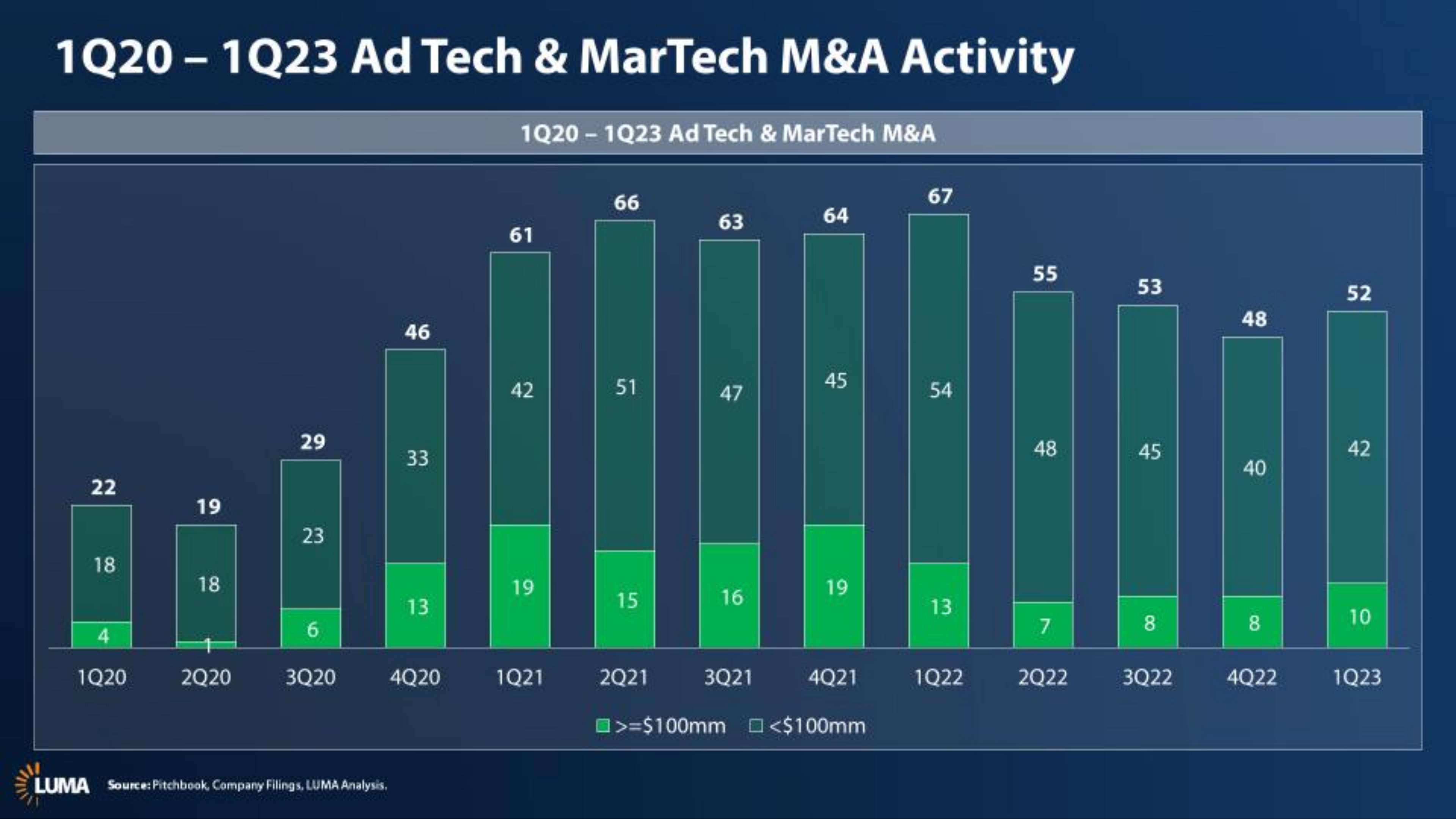
2021 v. 2022 IPO Market

2021	2022
18 New PubCos	**0 New PubCos**
$7.5bn+ Raised	**$0 Raised**

US VC Fundraising Activity; TTM as of 1Q22 and 1Q23

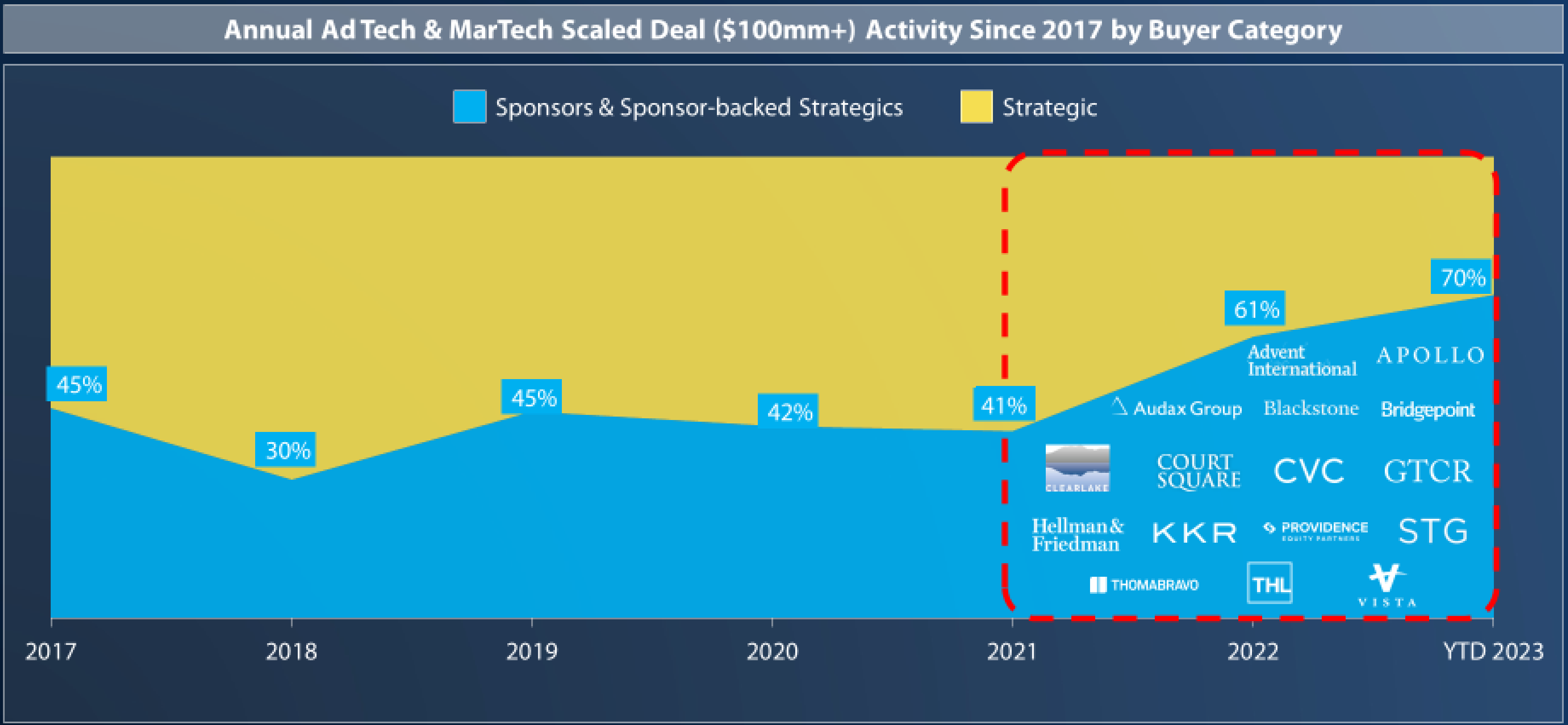


The era of free money ushered in a massive wave of public and private equity financings & liquidity events. In 2022 - 18 Ad Tech & MarTech companies entered the public markets, raising over $7.5bn between IPOs, SPACs, and direct listings. Since then - not a single Ad Tech or MarTech company was listed on the Nasdaq or NYSE. In the private financing world, the US VC market is down 50% year-over-year from a TTM total capital raised perspective as of 1Q23.



In late 2020 through the beginning of 2022, M&A activity in Ad Tech and MarTech exploded - particularly scaled deals. Where we sit now - deals are still getting done (though many are smaller, capitulation deals) and several of the scaled deals have been take-privates - capitulations in their own right.

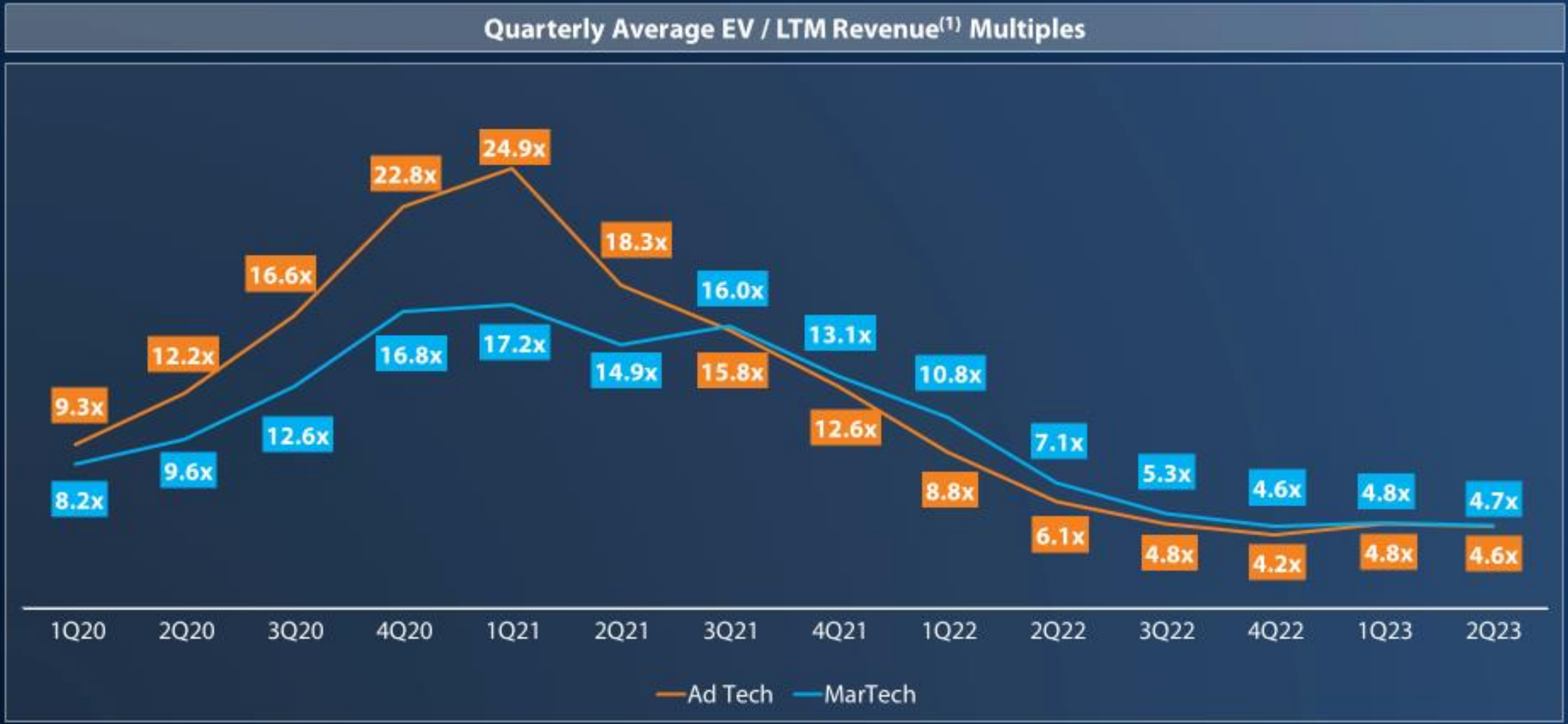
Private Equity Becomes the Sector's Most Prominent Buyer



LUMA **Source:** LUMA Analysis, Pitchbook, Company Filings.

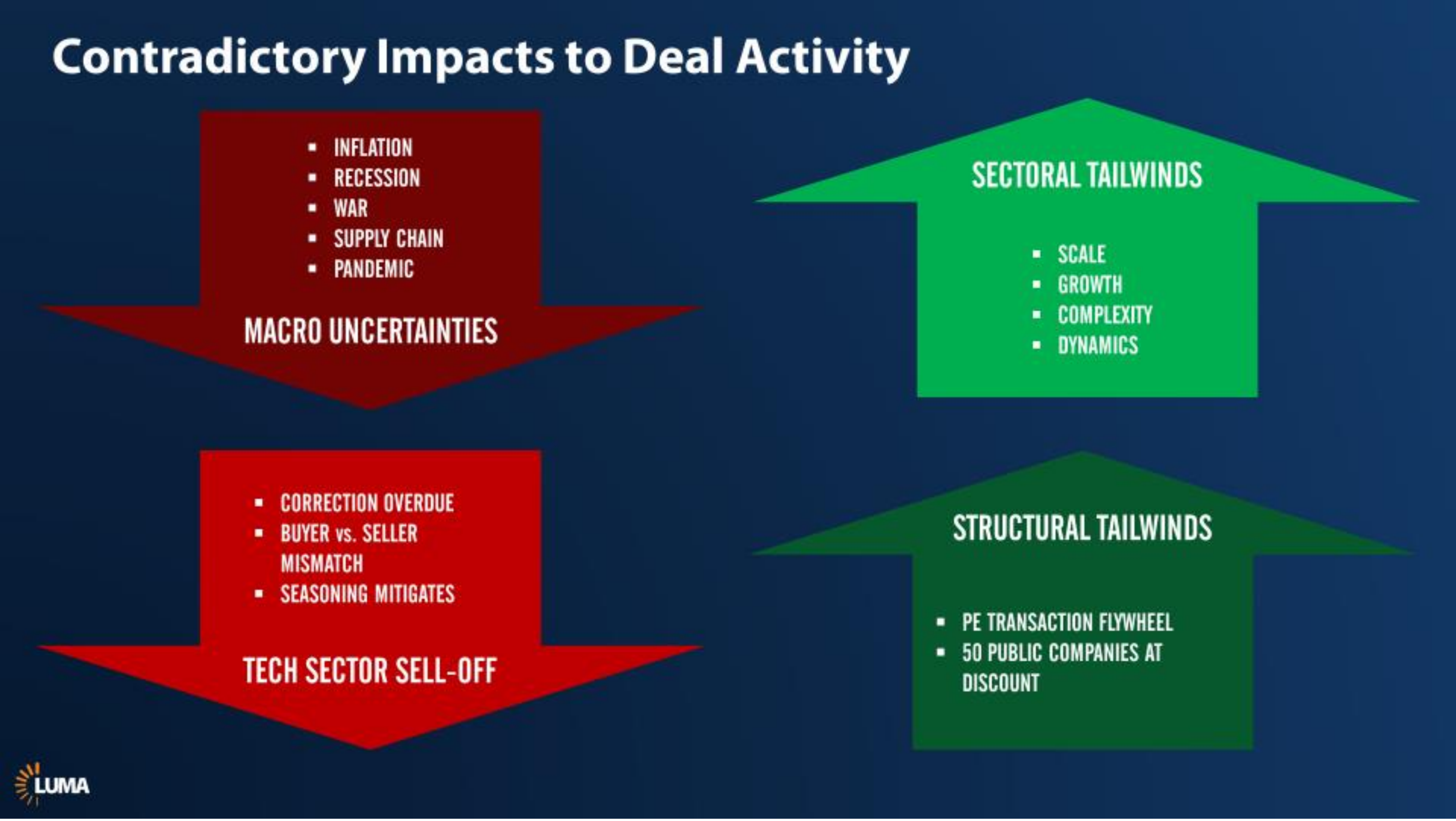
One fascinating trend we've noticed is the shifting scaled buyer universe - whereas in 2021 and years prior, Strategics encompassed the majority of $100mm+ deals - now Sponsors and Sponsor-backed strategics were buyers in the significant majority of scaled deals.

Valuations Have Stabilized Over The Last Few Quarters

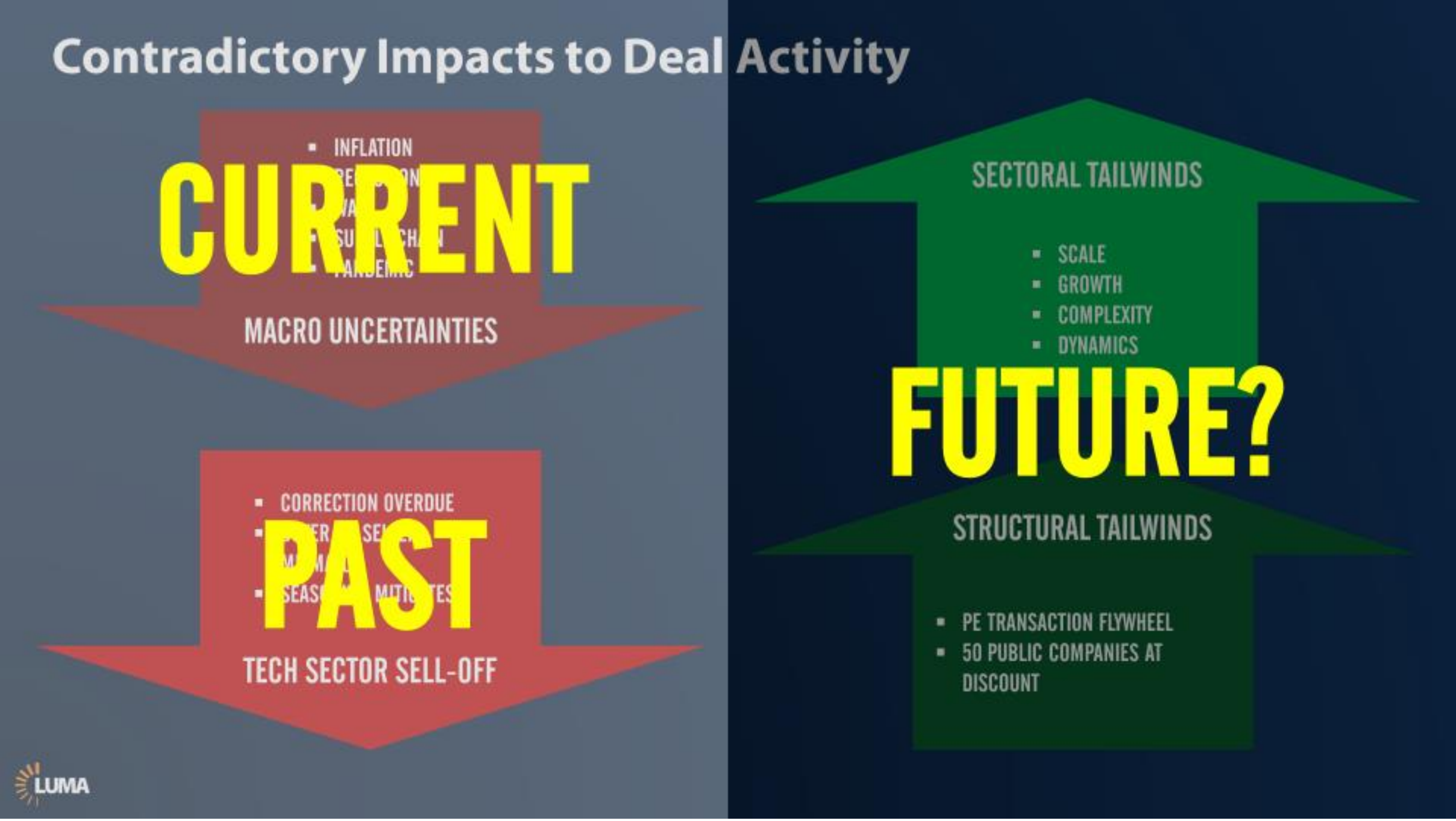


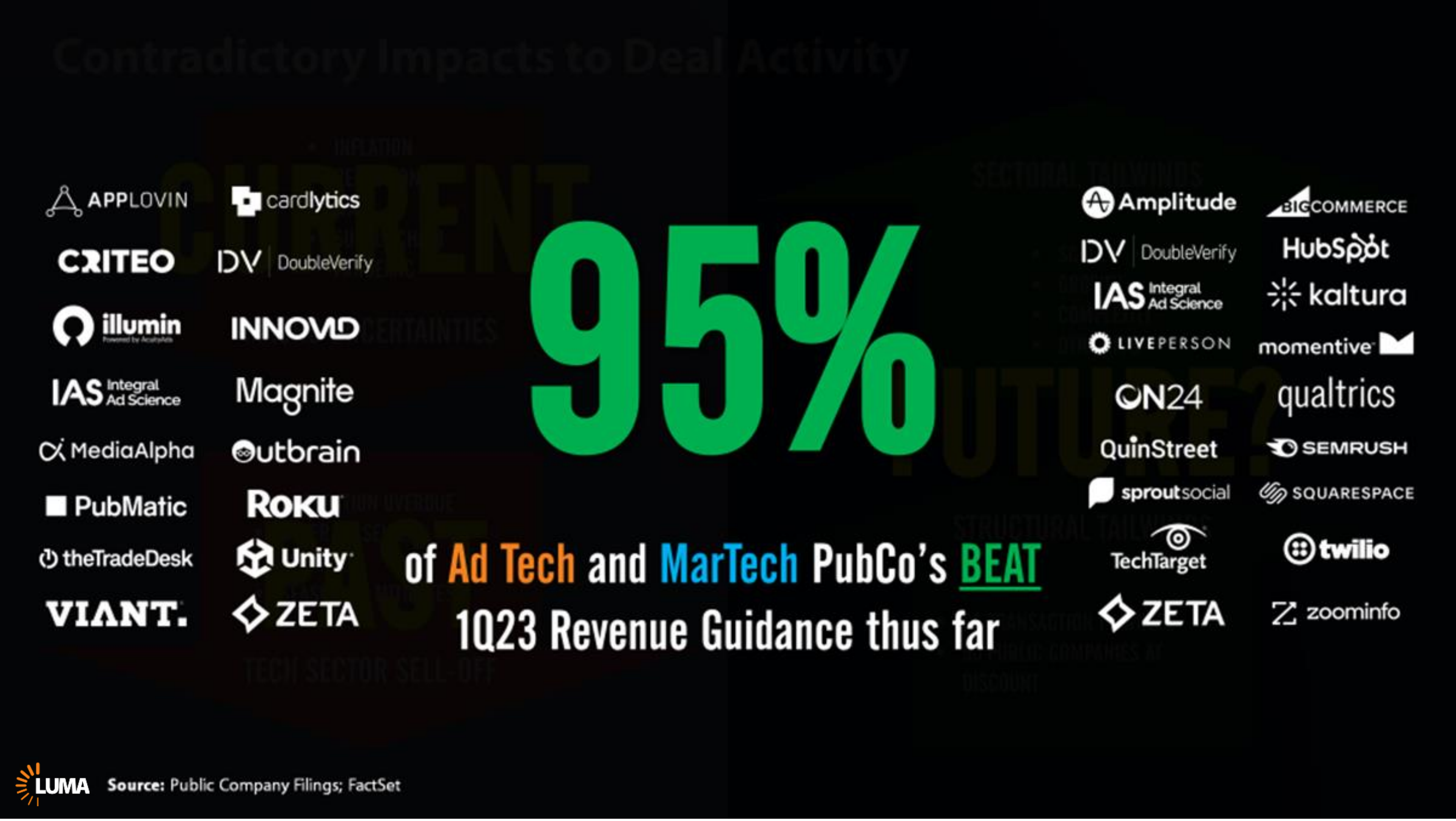
LUMA **Source:** LUMA Analysis, FactSet (market data as of 5/12/23) **Notes:** Excludes AFFLE, MBG, 1860. "Overlap Companies" DV, IAS included in Ad Tech cohort; RAMP, ZETA included in MarTech cohort. **(1)** Revenue refers to "Net Revenue" for Ad Tech Cohort.

With ZIRP and stimulus we saw a massive run-up in valuations across Ad Tech & MarTech - rising above 10.0x TTM revenues from 3Q20 - 4Q21. Valuations rapidly declined in 2022 but have now stabilized and marginally improved in the first half of 2023. This stabilization is critical for M&A activity, as buyers and sellers' expectations can be significantly different in a period of fast changing valuation metrics.



Looking at where we've been - a massive (and necessary) valuation correction, value mismatch between buyers and sellers - to where we are - significant macro-economic uncertainties via a potential recession, (cooling) inflation, and military conflict in Europe - we believe there is cause for optimism. The ever-complex and dynamic digital media & marketing landscape continues to evolve and grow with continued adoption in sectors like CTV and Commerce Media further burgeoned by revolutionary technologies like Artificial Intelligence. Meanwhile, Private Equity remains extremely active and a potential beach-head to more M&A activity - perhaps actioning on those 50 public Ad Tech and MarTech companies trading at a discount.


Contradictory Impacts to Deal Activity
INFLATION
CURRENT
MACRO UNCERTAINTIES
CORRECTION OVERDUE
PAST
TECH SECTOR SELL-OFF
SECTORAL TAILWINDS
SCALE
GROWTH
COMPLEXITY
DYNAMICS
FUTURE?
STRUCTURAL TAILWINDS
PE TRANSACTION FLYWHEEL
50 PUBLIC COMPANIES AT DISCOUNT
LUMA



And we've seen evidence to support this optimism, with the vast majority of Ad Tech and MarTech public companies reporting 1Q23 revenue actuals above their midpoint guidance.

Strategic Advice for the Digital Age

We welcome your feedback on all of the above. Whether it's industry trends, marketplace dynamics or to discuss a specific company situation, don't hesitate to reach out. Ping us directly or generally at info@lumapartners.com.