**Q3 2022**
Market Report

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LUMA's Focus on Digital Media & Marketing
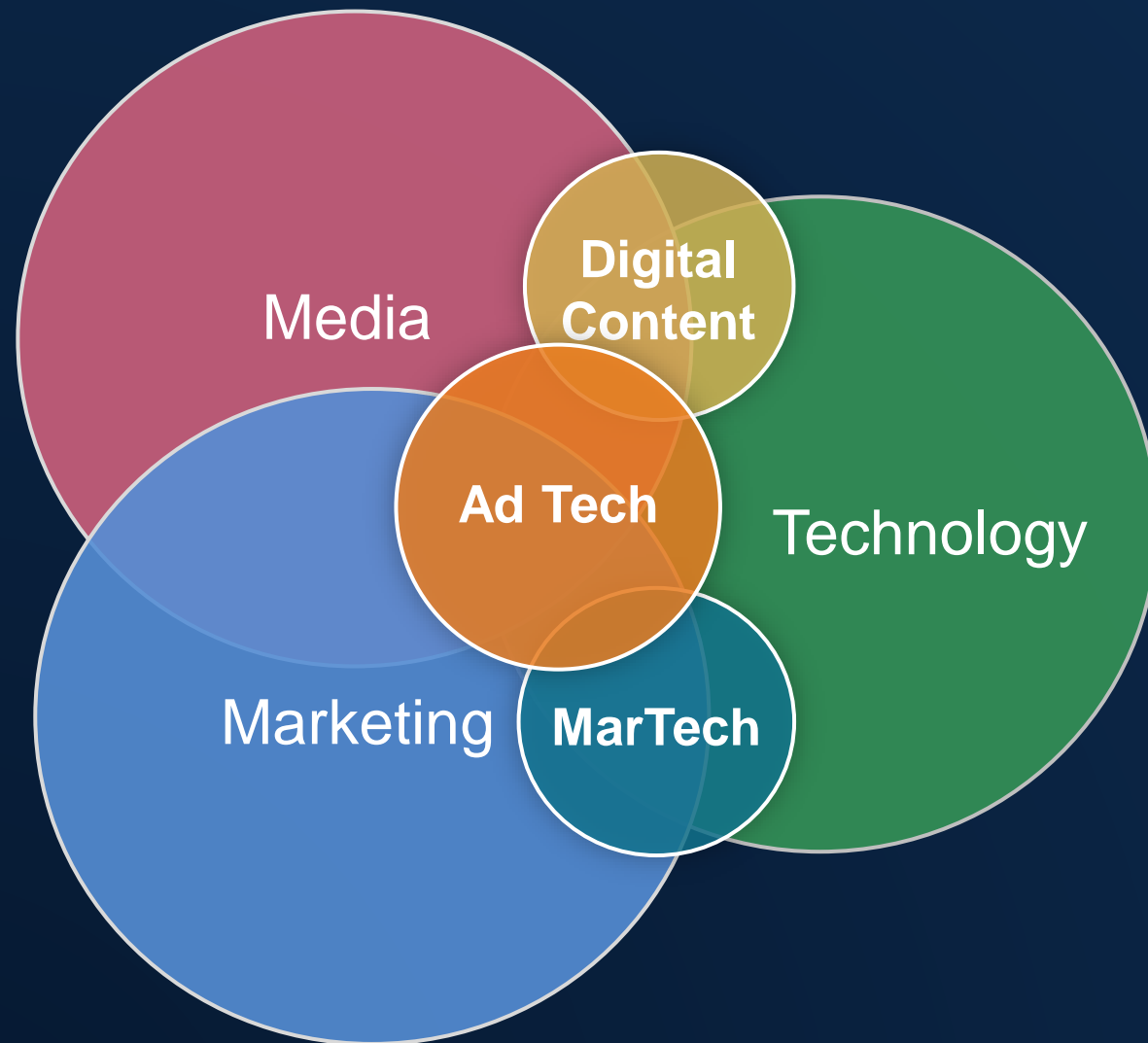
- LUMA's expertise is at the intersection of Media, Marketing and Technology.

- At this intersection exists:
  - Ad Tech
  - MarTech
  - Digital Content

- These companies employ a variety of business models including services, media, data, commerce and software.

LUMA's Recent Deals

Executive Summary

Overview

- Q3 2022 was another challenging quarter for the Digital Media and Marketing sectors, as the exogenous factors plaguing the first two quarters of the year continue to persist.
- The factors that are most in focus are the rampant inflationary environment, the Federal Reserve's efforts to combat said inflation by rapidly increasing the Federal Funds Rate, and the ongoing threat of global recession.
- Beyond the macroeconomic factors, industry specific challenges include Apple's application of App Tracking Transparency ("ATT") and a return to post-lockdown life of more in-person interactions and less digital activity.
- Despite market turbulence and exogenous factors, many of the underlying ecosystem trends in the **Ad Tech, MarTech,** and **Digital Content** sectors remain strong.

M&A Activity

- **Ad Tech** experienced its first quarter over quarter increase in deal activity this year (up **36%**) while **MarTech** and **Digital Content** experienced notable quarter over quarter decreases – down **10%** and **25%**, respectively.
- Scaled[1] deal activity was mixed this quarter with **Digital Content** activity sliding **53%** versus the prior quarter, **MarTech** declining **25%** QoQ, and **Ad Tech** experiencing a **150%** increase.
- The Digital Media and Marketing spaces continue to produce large, multibillion dollar transactions with Warburg Pincus' $12bn acquisition of Internet Brands and Unity Software's proposed $4.4bn merger with ironSource (currently trading at $3.8bn on a fully-diluted basis).

Public Markets Activity

- The looming threat of a global economic recession continues to weigh on the public markets, as well as the LUMA-tracked indices.
- **LUMA.A** and **LUMA.M** Indices were down **8%** and **3%** QoQ, respectively, versus the NASDAQ which was down **4%**.
- While the public markets continue to be challenged, Q3'22 has resulted in a new entrant into the **LUMA.M** cohort, Nogin Inc. (NASDAQ: NOGN), who completed its SPAC merger and began trading in August.
- In tandem with the market pressure, the **Ad Tech** and **MarTech** industries have been met with their share of headwinds resulting in many of the public players missing expected financial results and revising guidance in the wake of the economic downturn.

Private Financing Activity

- While scaled[1] financing activity remains off the highs seen at the end of last year, there continues to be significant VC and growth equity interest in the Digital Media and Marketing Technology sectors

Source: LUMA, FactSet (market data from 6/30/2022 and 9/30/2022). **Note:** (1) Scaled refers to private financings that equal or exceed $100mm in capital raised and M&A transactions in which the TEV is equal to or greater than $100mm.
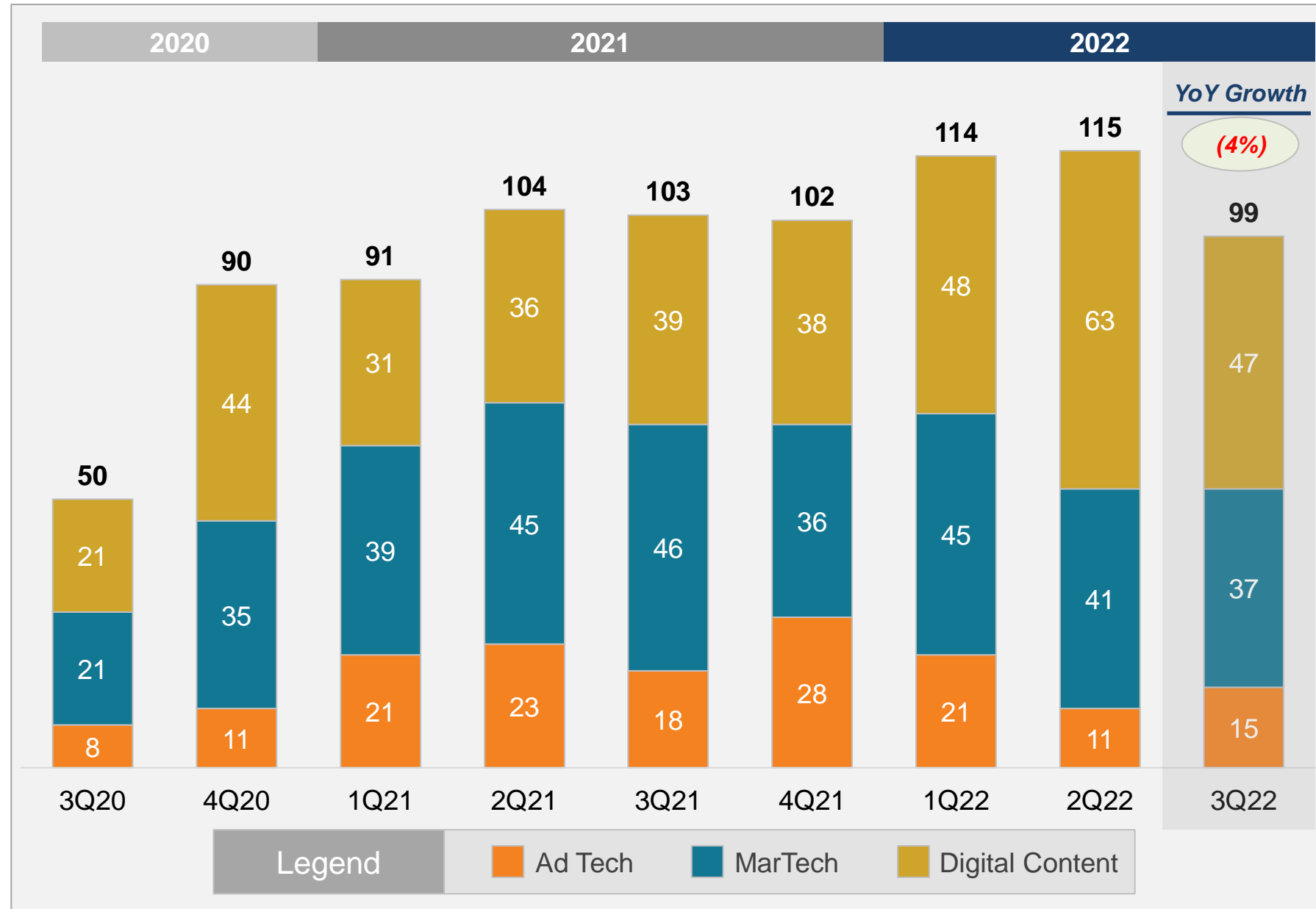
Table of Contents

Media & MarTech M&A Activity by Sector – Quarterly View

Ad Tech
MarTech
Digital Content

Number of Transactions – Quarterly (3Q20-3Q22)

| | 2020 | 2021 | 2022 |

YoY Growth
(4%)

Quarter	3Q20	4Q20	1Q21	2Q21	3Q21	4Q21	1Q22	2Q22	3Q22
Total	50	90	91	104	103	102	114	115	99
Digital Content	21	44	31	36	39	38	48	63	47
MarTech	21	35	39	45	46	36	45	41	37
Ad Tech	8	11	21	23	18	28	21	11	15

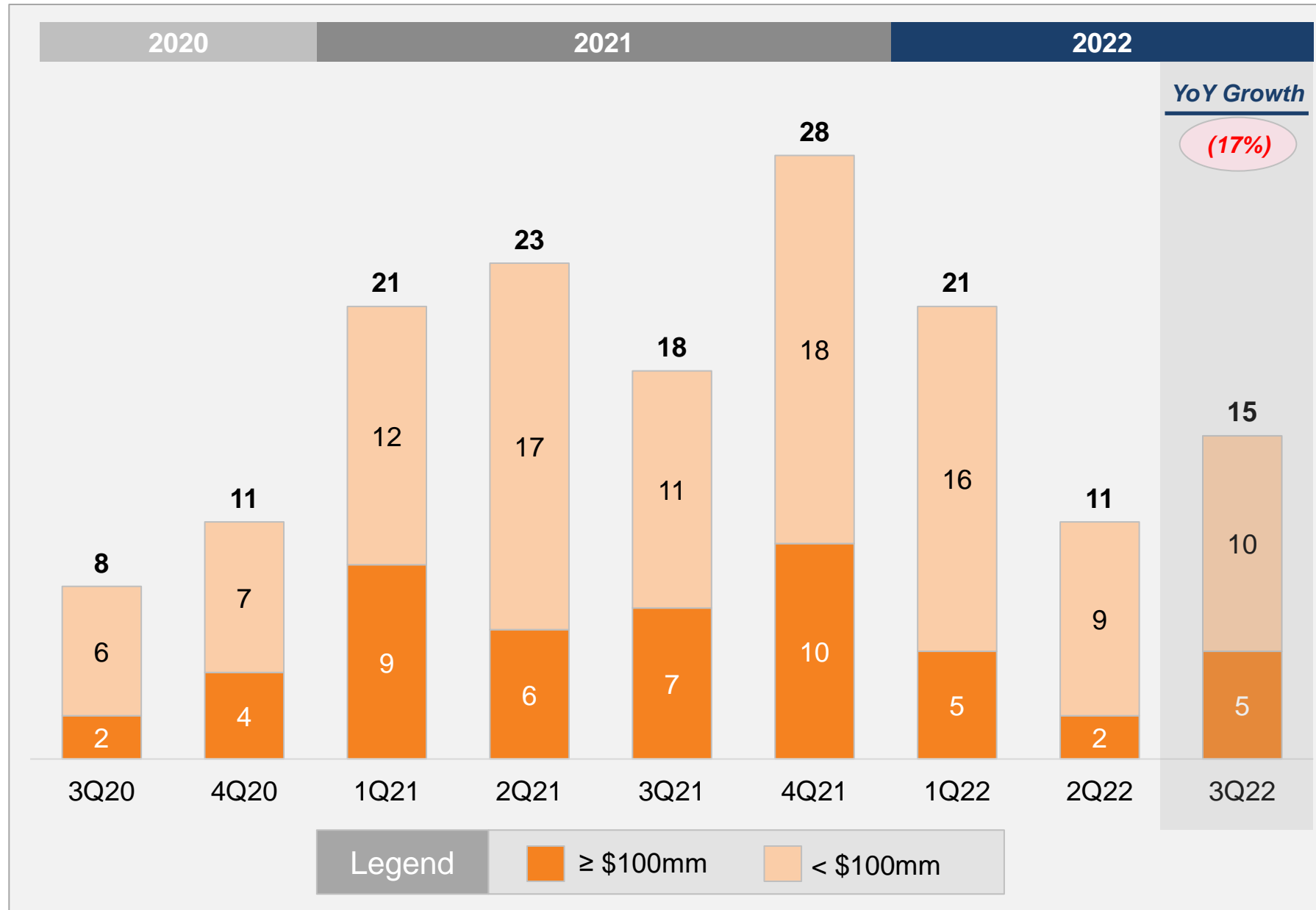**Legend:** ■ Ad Tech ■ MarTech ■ Digital Content

Commentary

- Digital Media & Marketing M&A activity saw it's first YoY decline this quarter since Q3 2020 – down **4%** vs. the same quarter last year.

- **Ad Tech** saw an increase QoQ in both overall and scaled deal activity - up **36%** and **150%**, respectively.

- **Digital Content**, which propped up overall M&A activity in Q2 2022, saw the largest contraction QoQ -- down **25%**.

- Scaled deal activity (>$100mm) continued to slide, down **24%** QoQ from Q2 2022 and down **50%** YoY from Q3 2021. Similar to overall deal activity, the sector most impacted was **Digital Content**, which saw scaled deal activity decline **53%** QoQ.

- The pullback continues as the variety and severity of the current macro trends has created significant uncertainty in the market, which is the biggest impediment to M&A. The Federal Reserve's aggressive monetary policy has become the latest factor as they attempt to combat the rampant inflation.

- Ultimately, we continue to believe the strong underlying digital trends will drive activity but expect buyers to take added caution and conviction while considering opportunities.

Table of Contents

Ad Tech M&A Activity

Number of Transactions – Quarterly (3Q20-3Q22)

	2020		2021				2022		
	3Q20	4Q20	1Q21	2Q21	3Q21	4Q21	1Q22	2Q22	3Q22
Total	8	11	21	23	18	28	21	11	15
< $100mm	6	7	12	17	11	18	16	9	10
≥ $100mm	2	4	9	6	7	10	5	2	5

YoY Growth (17%)

Legend: ≥ $100mm ■   < $100mm ■

Observations

- **Ad Tech** saw some bounce back in deal activity after a significant drop off in Q2, including a full rebound of scaled deal activity, with 5 deals over $100mm in the quarter.

- The highlight of the quarter was Unity Software's $4.4bn merger bid for mobile-app monetization platform, ironSource (currently trading at $3.8bn on a fully-diluted basis).

- Private Equity continues to be active in the space with Bridgepoint Group's $900mm acquisition of programmatic media company, MiQ, and Gamut Capital Management's acquisition of creative logistics provider, Extreme Reach.

Looking Ahead

- We've seen increased focus on horizontal strategies (connecting across supply and demand), which we expect to continue driving M&A discussions in the future.

- Horizontal strategies have the ability to improve SPO, create greater margin capture, and enhance data husbandry.

Source: LUMA, PitchBook, Company announcements.

Ad Tech – Q3 2022 Notable Deals

	Ad Tech
	MarTech
	Digital Content

Announcement Date	Target	Acquirer	Cumulative Capital Raised	Enterprise Value	Commentary
9/14/2022	martin	PubMatic	ND	$45	■ PubMatic has acquired Martin, a media measurement and reporting platform. ■ The deal demonstrates PubMatic's deepening investment in Supply Path Optimization (SPO).
9/13/2022	MiQ	Bridgepoint	ND	$900	■ Bridgepoint Group has taken a majority stake in MiQ, a programmatic managed services solution. ■ MiQ reported $464mm in Net Revenue and $45.3mm in operating profit in 2021, per Business Insider.
9/7/2022	ER Extreme Reach	GAMUT CAPITAL	$261	ND	■ Gamut Capital will acquire Extreme Reach, a media activation, distribution and creative enablement platform. ■ Extreme Reach operates in 140 countries and 45 languages, with 1,100 FTEs.
8/18/2022	exmox	AONIC	ND	$100	■ ExMox, a performance advertising platform for mobile, has been acquired by Aonic, a game studio holdco. ■ Exmox was bootstrapped since its founding in 2015 and reaches 250mm+ users per month.
7/26/2022	AMOBEE	TREMOR INTERNATIONAL Ltd.	$77	$239	■ Tremor Int'l has acquired Amobee, an independent video & CTV advertising and media optimization provider. ■ The deal will expand Tremor's U.S. reach and is expected to be accretive to the DSP business in 12 months.
7/19/2022	ironSource	Unity	NA	$4,400	■ Unity announced a merger with ironSource, where IS shareholders will receive ~27% of the combined entity. ■ The deal will bring together Unity's game engine & Unity Ads with ironSource's mediation and publishing platforms.
7/5/2022	DATASEAT	Media and Games Invest Group	$2	ND	■ Verve, a subsidiary of MGI, acquired Dataseat, a mobile DSP specializing in contextual user acquisition. ■ The acquisition adds AI-driven, non-identifier platform capabilities for mobile gaming and non-gaming companies.

Source: PitchBook, Company Announcements, Business Wire, Business Insider, Dataseat, MarTech Series, Pocket Gamer, and VentureBeat.
Note: All figures in USD millions unless noted otherwise. Deals shown reflect those announced during the quarter ending September 30, 2022.

MarTech M&A Activity

Number of Transactions – Quarterly (3Q20-3Q22)

	2020		2021				2022		

YoY Growth (20%)

Quarter	≥ $100mm	< $100mm	Total
3Q20	4	17	21
4Q20	9	26	35
1Q21	10	29	39
2Q21	9	36	45
3Q21	9	37	46
4Q21	9	27	36
1Q22	6	39	45
2Q22	4	37	41
3Q22	3	34	37

Legend ■ ≥ $100mm   □ < $100mm
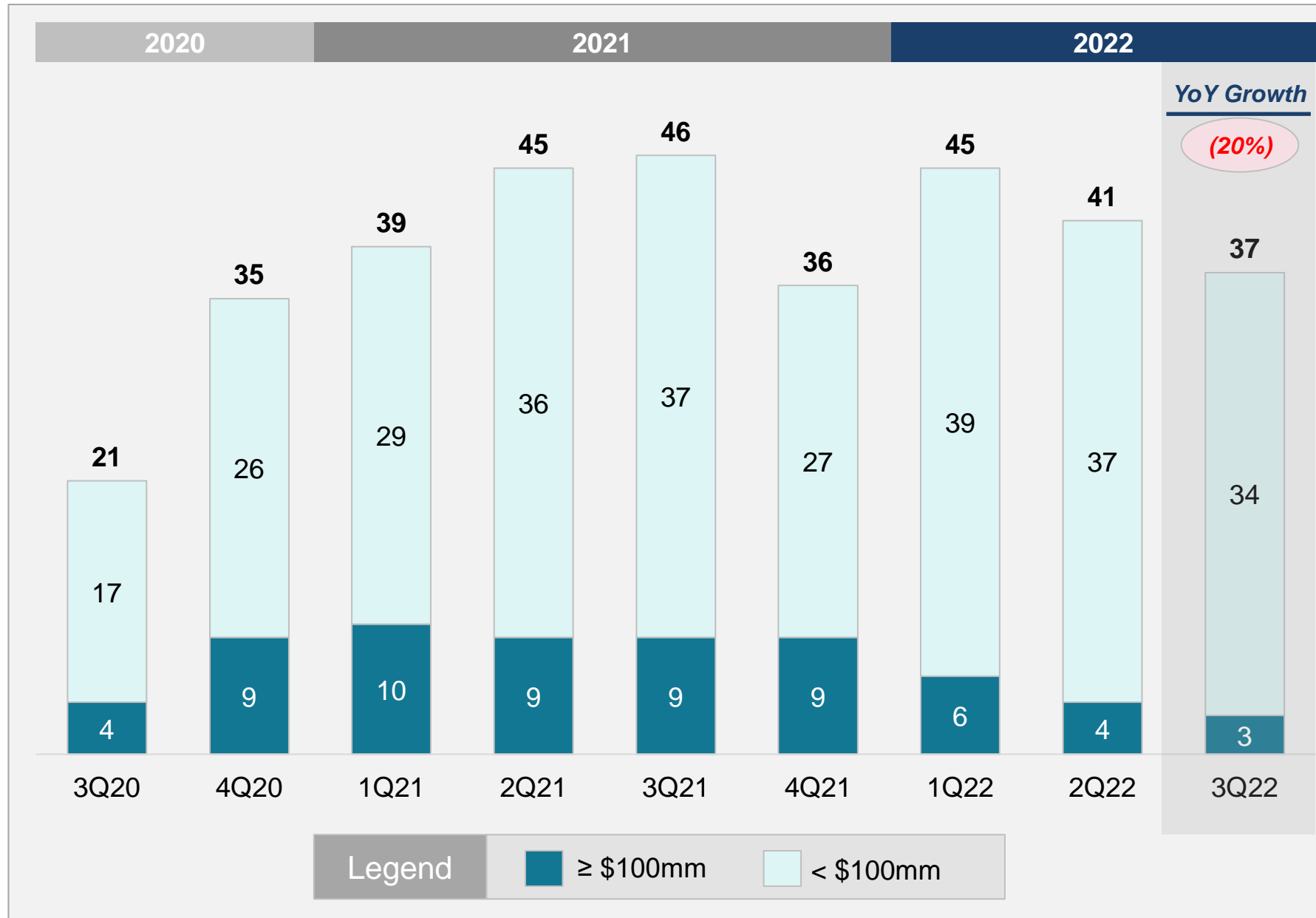
Observations

- **MarTech** saw a decline in overall deal activity both QoQ (**-10%**) and YoY (**-20%**).

- Scaled transactions were down again this quarter, reaching the lowest levels in scaled activity since the start of the COVID pandemic.

- Similar to last quarter, the largest transaction was a take-private, in this case, PE-backed CommerceHub is acquiring ChannelAdvisor for over $700mm.

- Private Equity played a major role in M&A activity throughout the quarter and was responsible for 2 of the 3 scaled transactions.

Looking Ahead

- With third-party data under scrutiny, expect to see a continued focus on systems that capture, manage and execute on first-party data.

Source: LUMA, PitchBook, Company announcements.

MarTech – Q3 2022 Notable Deals

Announcement Date	Target	Acquirer	Cumulative Capital Raised	Enterprise Value	Commentary
9/6/2022	channeladvisor	CommerceHub	NA	$733	■ CommerceHub is acquiring ChannelAdvisor (NYSE: ECOM), an omnichannel eCommerce solutions provider. ■ The transaction is being led by Insight Partners, who is already a backer of CommerceHub.
8/31/2022	EVERSIGHT	instacart	$28	$54	■ Eversight, an AI-powered pricing & promotions platform for CPG brands, has been acquired by Instacart. ■ Eversight's functionality will be added to Instacart's tools for grocery vendors on the platform.
8/7/2022	ENSIGHTEN	CHEQ	$109	ND	■ Ensighten, a consent management platform, has been acquired by CHEQ, a go-to-market security provider. ■ Ensighten's products will join a larger set of tools under the CHEQ umbrella.
7/25/2022	Chartbeat	CUADRILLA CAPITAL	$39	ND	■ Chartbeat, a SaaS-based content analytics platform, has been acquired by Cuadrilla Capital. ■ Cuadrilla's sponsorship will support strategic go-to-market efforts, product development and general expansion.
7/13/2022	THE STABLE	accenture	$2	ND	■ Accenture has acquired The Stable, a digital media agency focused on omnichannel retail & DTC commerce. ■ The Stable, founded in 2015, was recognized as one of Inc Magazine's fastest growing private companies in 2021.
7/11/2022	SUNDAYSKY	CLEARHAVEN PARTNERS	$76	$100	■ Clearhaven Partners has taken a controlling stake in SundaySky, a video experience platform for eCommerce. ■ Clearhaven will support the continued development of the SaaS-based video creation & customization platform.

Source: PitchBook, Company Announcements, BizJournals, TechCrunch, VentureBeat, WSJ.
Note: All figures in USD millions unless noted otherwise. Deals shown reflect those announced during the quarter ending September 30, 2022.

Digital Content M&A Activity

Number of Transactions – Quarterly (3Q20-3Q22)

Legend: ≥ $100mm | < $100mm

Bar chart data (3Q20 through 3Q22):

Quarter	Total	≥ $100mm	< $100mm
3Q20	21	8	13
4Q20	44	13	31
1Q21	31	11	20
2Q21	36	13	23
3Q21	39	16	23
4Q21	38	14	24
1Q22	48	13	35
2Q22	63	15	48
3Q22	47	7	40

2020 | 2021 | 2022

YoY Growth: **+21%**
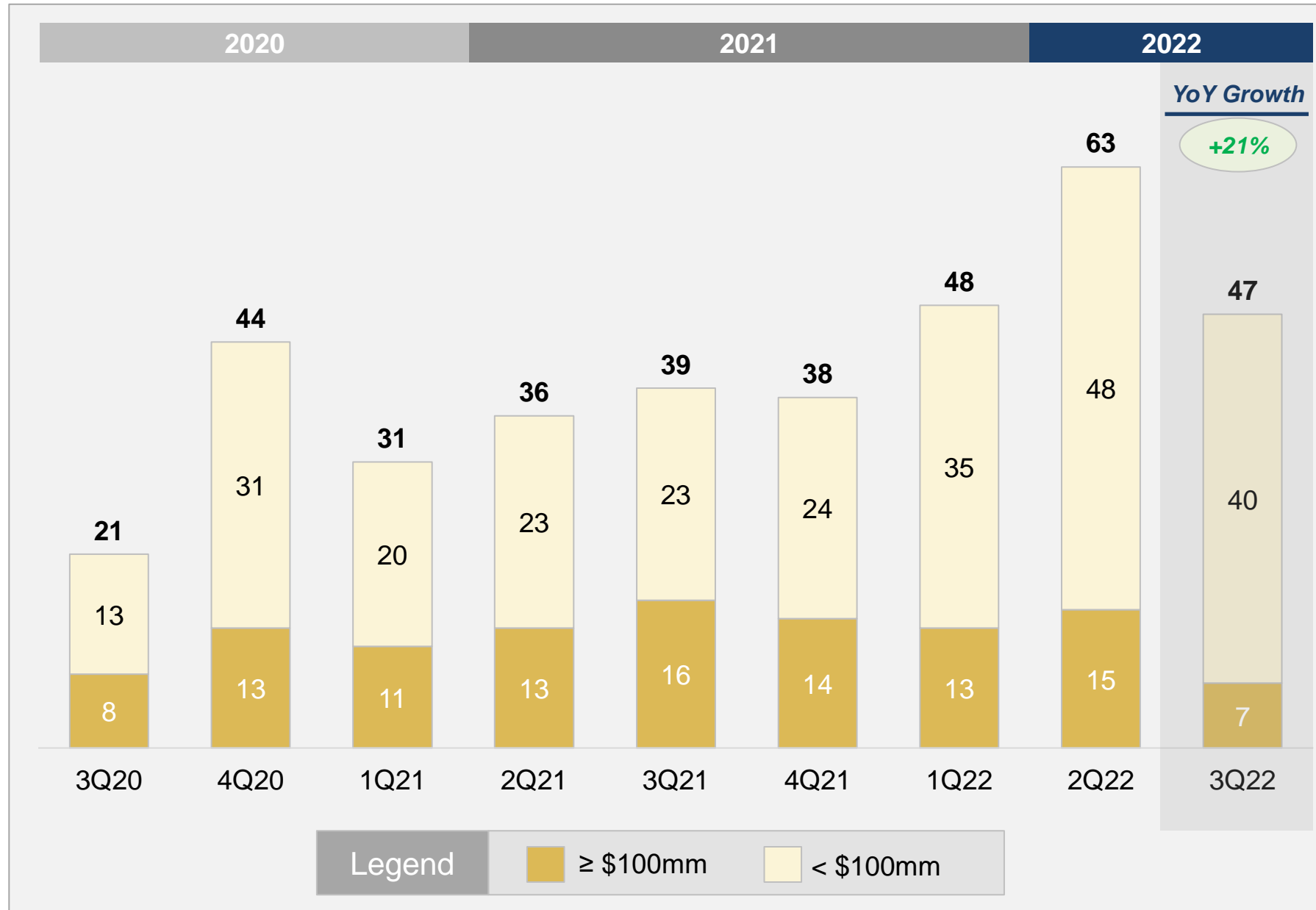
Observations

- Last quarter we referred to **Digital Content** as a "bright spot" in an otherwise bleak quarter. This quarter saw a significant decline in activity.

- Digital Content was down **25%** QoQ, but up **21%** compared to the same quarter last year.

- The **Digital Content** ecosystem delivered the largest transaction this quarter with Warburg Pincus's $12bn acquisition of Internet Brands.

- Twitter's embattled acquisition by Elon Musk for $42.2bn appears to be back on track.

- Gaming continues to be a leading driver of M&A in the space.

Looking Ahead

- Despite app downloads and consumer spending on IAPs declining in the quarter, gaming continues to be a prime target for M&A activity.

- A couple of notable developments include Savvy Games' intent to invest $38bn in the space through 2030 + reports that Tencent is shifting its M&A strategy to majority deals in gaming and Web3 in Europe to offset regulatory pressure and slowing growth in its home market.

Source: LUMA, PitchBook, Company announcements.

Digital Content – Q3 2022 Notable Deals

Announcement Date	Target	Acquirer	Cumulative Capital Raised	Enterprise Value	Commentary
9/27/22	MY.GAMES	Aleksander Chachava LeTa CAPITAL	ND	$642	■ VK Company sold its gaming division MY.GAMES to Aleksander Chachava of LETA Capital for $642mm. ■ VK will continue to develop its own gaming services under VK Play, the largest Russian game platform.
8/22/2022	TCGPLAYER	ebay	$90	$295	■ TCGplayer, an eCommerce platform for collectible trading cards, is being acquired by eBay for $295mm. ■ The TAM and growth of the trading cards and collectibles category was seen as central to the acquisition thesis.
8/17/2022	BARSTOOL SPORTS	PENN ENTERTAINMENT	$15	$604	■ PENN Entertainment (f.k.a Penn National Gaming) exercised its option to acquire 100% ownership in Barstool. ■ Penn will pay $325mm to acquire the outstanding shares of the entertainment & media platform.
8/8/2022	AXIOS	COX ENTERPRISES	$146	$525	■ Axios Media, a digital publisher of news and intelligence, has been acquired by Cox Enterprises. ■ Axios will spin off its software arm, Axios HQ, as a stand-alone company led by Axios president Roy Schwartz.
7/19/2022	Internet Brands®	WARBURG PINCUS	$4,820	$12,000	■ Internet Brands (IB) completed a recapitalization with a group led by WP; KKR remains majority holder. ■ IB is a collection of online media properties and software platforms across numerous vertical markets.

Source: PitchBook, Company Announcements, Axios, FrontOfficeSports.
Note: All figures in USD millions unless noted otherwise. Deals shown reflect those announced during the quarter ending September 30, 2022.

Table of Contents

The LUMA Indices Universe at a Glance

Denotes No Longer Publicly-Traded

Denotes Newly Public Company

Ad Tech

acuity · ADTHEORENT · affle · APPLOVIN
cardlytics · CRITEO · Digital Turbine · INNOVID
ironSource · Magnite · MediaAlpha · Media and Games Invest Group
Mobvista · Outbrain · Perion · PubMatic
Roku · Taboola · telaria · theTradeDesk
TREMOR INTERNATIONAL Ltd. · Unity · VIANT

Overlap

DV DoubleVerify
IAS Integral Ad Science
/LiveRamp
ZETA

MarTech

Amplitude · Appier · BIGCOMMERCE · braze · BRIGHTCOVE
coveo · HubSpot · KALTURA · LIVEPERSON
Medallia · momentive · nogin · ON24
Quotient · qualtrics · SEMRUSH · sprinklr
sproutsocial · SQUARESPACE · shopify · twilio
Yext · zendesk · zoominfo

Total: 51 Companies[1]

Aggregate Market Cap as of Market Date

~$201bn

Aggregate Revenue[2], CY22E (Approximate)

~$37bn

Average CY22E Revenue[2] Growth Rate

18.0%
Down from +24.6% as of Q2'22

Market Cap Distribution of LUMA Indices Universe

	Micro Cap or Lower	Small Cap	Mid Cap	Large Cap	Mega Cap
Total	8	23	12	6	
(pink)		3	1		
(teal)	3	9	7	4	
(orange)	5	11	4	2	
Range	<$300mm	$300mm - $2bn	$2bn - $10bn	$10bn - $200bn	>$200bn

Applicable Market Capitalization Range
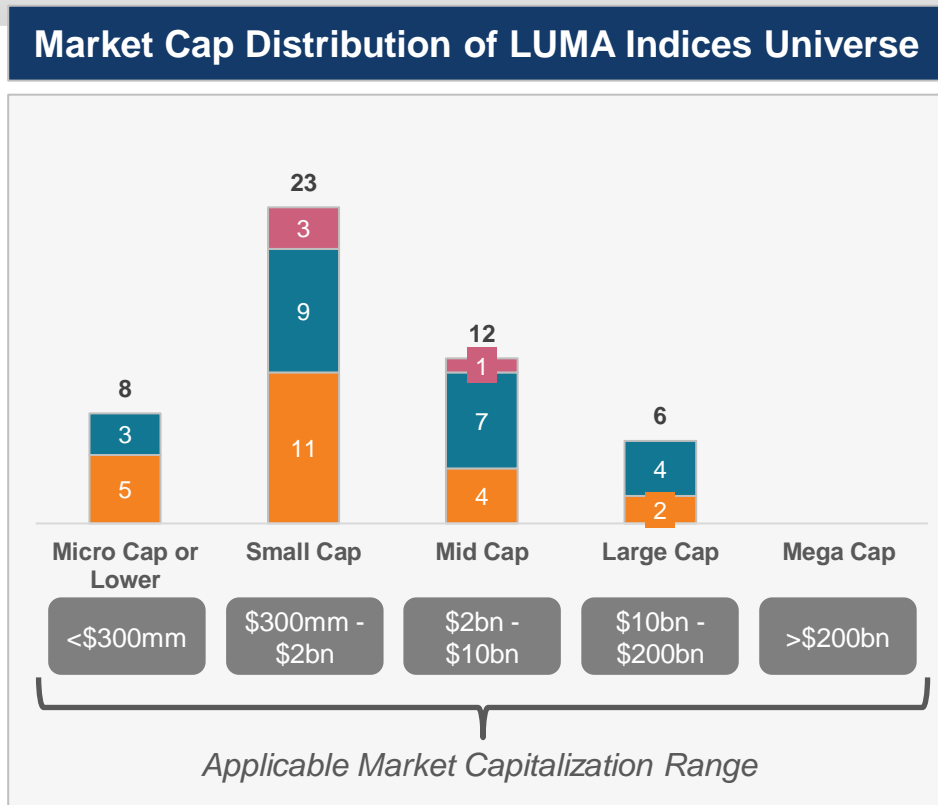
Int'l Presence of LUMA Indices Universe

10 Countries Represented

HKEx 香港交易所 · London Stock Exchange · NASDAQ · JPX · NSE · NYSE · TSX

Ad Tech and MarTech: Downtrend Continues With Broader Market

LUMA Indices vs. Nasdaq 100 Index Performance *(Q3'2020 – Q3'2022)*
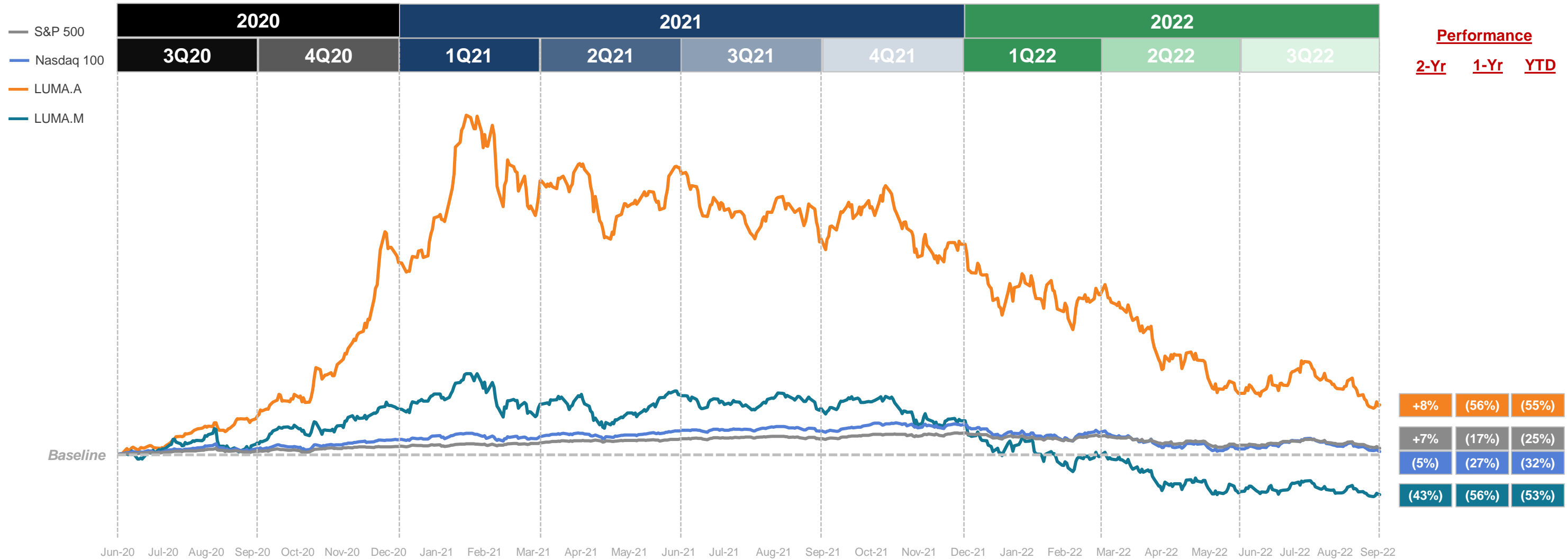
Legend:
- S&P 500
- Nasdaq 100
- LUMA.A
- LUMA.M

	2020				2021				2022	
	3Q20	4Q20	1Q21	2Q21	3Q21	4Q21	1Q22	2Q22	3Q22

Performance	2-Yr	1-Yr	YTD
LUMA.A	+8%	(56%)	(55%)
S&P 500	+7%	(17%)	(25%)
Nasdaq 100	(5%)	(27%)	(32%)
LUMA.M	(43%)	(56%)	(53%)

The looming threat of a global economic recession continues to weigh on the public markets as companies begin to revise their outlook.

Source: FactSet (market data as of 9/30/2022), LUMA analysis. **Note:** Portfolio Weighting is re-balanced every six-months. Nogin began trading after the rebalance period and therefore is currently excluded from LUMA.M for tracking purposes.

Q3 2022 Ad Tech & MarTech Public Valuation Trends

Ad Tech

acuity° · ADTHEORENT · affle · APPLOVIN
cardlytics · CRITEO · Digital Turbine · INNOVID
iS ironSource · Magnite · MediaAlpha · Media and Games Invest Group
Mobvista · Outbrain · Perion · PubMatic
Roku · Taboola · theTradeDesk
TREMOR INTERNATIONAL Ltd. · Unity · VIANT.

Overlap

DV DoubleVerify
IAS Integral Ad Science
/LiveRamp
ZETA

MarTech

Amplitude · Appier · BIGCOMMERCE · braze · BRIGHTCOVE
coveo · HubSpot · KALTURA · LIVEPERSON
momentive · nogin · ON24
Quotient · qualtrics · SEMRUSH · sprinklr
sproutsocial · Squarespace · shopify · twilio
yext · zendesk · zoominfo

		Ad Tech	Overlap	MarTech
Aggregate Market Cap (as of 9/30/2022)		~$73bn	~$9bn	~$118bn
Avg. EV / Revenue[1]		**2022**	**2022**	**2022**
	12/31/21	9.4x	6.1x	7.6x
	6/30/22	3.8x	4.3x	4.8x
	Current (9/30/22)	3.9x	4.6x	4.9x
EV / Net Revenue % Change	Since 12/31/21	(58.5%)	(24.6%)	(35.5%)
	Since 6/30/22	+2.6%	+7.0%	+2.1%

Revenue Multiples have increased QoQ due to many of the cohort companies lowering their 2022E revenue expectations as economic headwinds take effect.

Ad Tech & MarTech EV / Revenue Historical Trading Multiples

EV / LTM Revenue Average Multiples (2012 – September 2022)
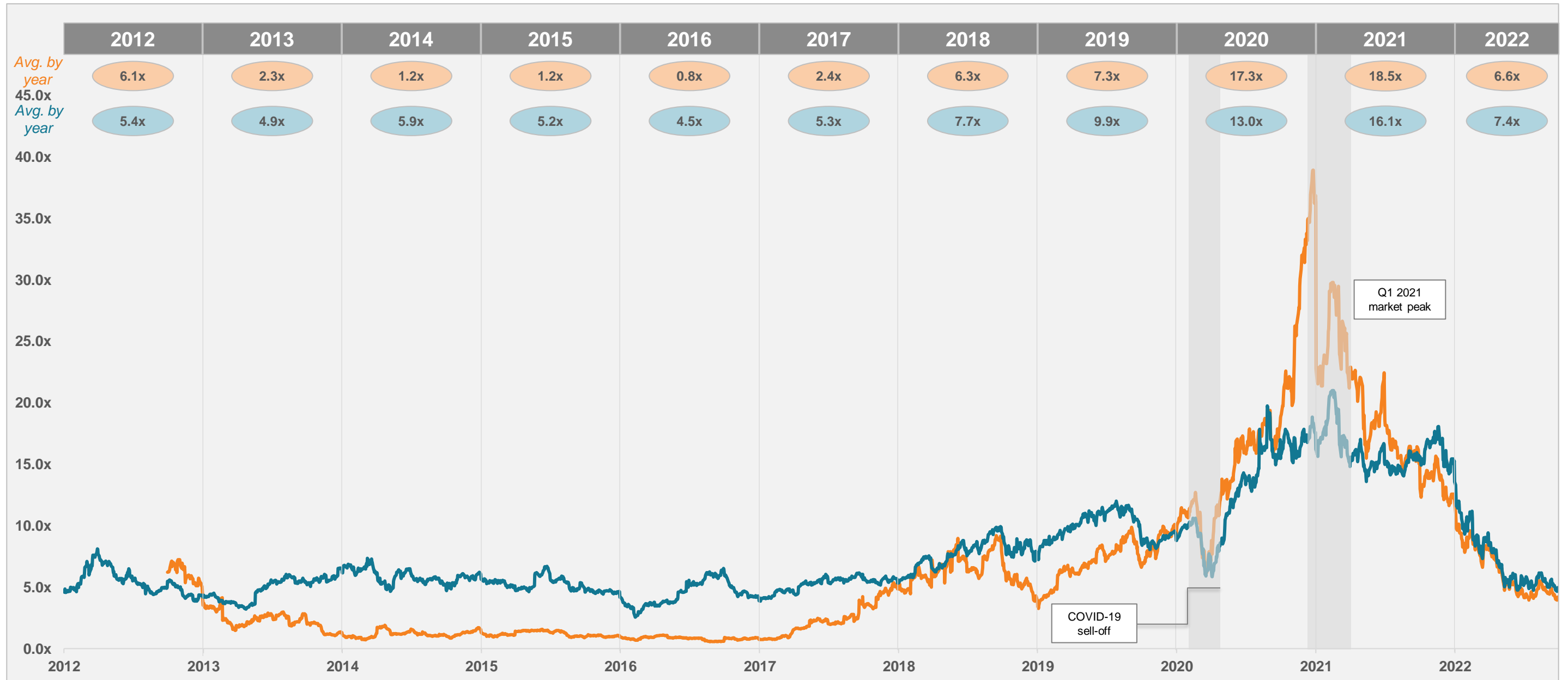
	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Avg. by year	6.1x	2.3x	1.2x	1.2x	0.8x	2.4x	6.3x	7.3x	17.3x	18.5x	6.6x
Avg. by year	5.4x	4.9x	5.9x	5.2x	4.5x	5.3x	7.7x	9.9x	13.0x	16.1x	7.4x

Q1 2021 market peak

COVID-19 sell-off

Public Issuances Dwindle Following a Record Year in 2021

	Pre-2020 PubCos	2020/2021 Issuances	2022 Issuances	Rumored/Pipeline
Ad Tech	acuity, affle, cardlytics, CRITEO, Digital Turbine, Magnite, Mobvista, Media and Games Invest Group, Perion, ROKU, telaria, TREMOR INTERNATIONAL Ltd., theTradeDesk	ADTHEORENT, APPLOVIN, DV DoubleVerify, IAS Integral Ad Science, INNOVID, ironSource, MediaAlpha, Outbrain, PubMatic, Taboola, Unity, VIANT		Basis Technologies, INMARKET, INMOBI, minute media, MOLOCO, LIFTOFF, Vungle, SAMBA TV, Teads, videoamp
MarTech	Appier, BRIGHTCOVE, BIGCOMMERCE, HubSpot, LIVEPERSON, LiveRamp, Medallia, momentive, ON24, Quotient, shopify, sproutsocial, twilio, yext, zendesk, zoominfo	Amplitude, braze, coveo, kaltura, qualtrics XM, SEMRUSH, sprinklr, SQUARESPACE, ZETA	nogin	contentful, gupshup, impact.com, MessageBird, near, ROKT

Commentary

- In the challenging and inhospitable public markets, new entrants into the LUMA indices have dwindled substantially vs. 2020/2021.

- Factors such as geopolitical tensions, rampant inflation, hawkish monetary policy and global economic uncertainty have given companies pause on public offerings.

- 2022 YTD saw its first public entry into our LUMA indices, Nogin Inc, through a de-SPAC.

- Other anticipated public entrants are awaiting a more favorable environment to make their public debut – now more than likely 2023 and beyond.

21 companies ➕ **1 company**

22 companies have gone public since 2019

Ad Tech – Q3 2022 Market Performance

Ranking – Highest to Lowest Share Price Increase / (Decrease) in %

	Company	Share Price ($USD) End of Q2 2022	Share Price ($USD) End of Q3 2022	% Increase Q3 % Increase / (Decrease)	Market Cap (US$mm) End of Q3 2022	EV / LTM Net Revenue End of Q2 2022	EV / LTM Net Revenue End of Q3 2022
1	Innovid	$1.66	$2.70	+62.3%	$399	2.0x	3.5x
2	Zeta Global	$4.52	$6.61	+46.1%	$1,837	2.7x	3.7x
3	ironSource	$2.38	$3.47	+45.6%	$3,786	3.5x	5.1x
4	The Trade Desk	$41.89	$60.17	+43.6%	$30,489	15.6x	21.2x
5	DoubleVerify	$22.67	$27.33	+20.5%	$4,754	10.2x	11.7x
6	Affle	$13.46	$15.49	+15.1%	$2,064	32.6x	37.8x
7	Criteo	$24.40	$26.90	+10.2%	$1,803	1.2x	1.5x
8	Perion Network	$18.18	$19.36	+6.5%	$919	2.6x	2.5x
9	PubMatic	$15.89	$16.74	+5.3%	$962	3.2x	3.2x
10	S&P 500	$3,785.38	$3,585.62	(5.3%)	NA	NA	NA
11	MediaAlpha	$9.85	$8.88	(9.8%)	$682	9.6x	9.0x
12	Unity Software	$36.82	$32.10	(12.8%)	$10,532	10.1x	8.5x
13	Viant	$5.08	$4.26	(16.1%)	$281	2.4x	2.1x
14	Digital Turbine	$17.47	$14.47	(17.2%)	$1,457	5.8x	4.9x
15	Tremor International	$4.25	$3.47	(18.4%)	$579	1.1x	0.7x
16	Acuity Ads	$2.31	$1.74	(24.7%)	$103	1.5x	0.8x
17	Mobvista	$0.67	$0.50	(24.9%)	$832	NA	NA
18	Magnite	$8.88	$6.61	(25.6%)	$950	3.9x	3.1x
19	Integral Ad Science	$9.93	$7.25	(27.0%)	$1,184	5.1x	3.7x
20	Outbrain	$5.03	$3.67	(27.1%)	$216	0.5x	0.3x
21	Taboola	$2.53	$1.81	(28.5%)	$468	1.1x	0.9x
22	LiveRamp	$25.81	$18.29	(29.2%)	$1,354	2.5x	1.6x
23	AdTheorent	$3.09	$2.16	(30.1%)	$186	1.3x	1.2x
24	Roku	$82.14	$56.51	(31.2%)	$8,266	3.5x	2.2x
25	Media and Games Invest	$2.40	$1.55	(35.4%)	$246	1.7x	1.4x
26	AppLovin	$34.44	$19.54	(43.3%)	$7,666	5.5x	3.4x
27	Cardlytics	$22.31	$9.42	(57.8%)	$344	8.9x	6.4x
	Average			**(7.7%)**		**5.5x**	**5.6x**
	Average (Ex. Affle)[1]					**4.4x**	**4.3x**

Source: FactSet (market data as of 6/30/2022 and 9/30/2022), Company Filings. See Appendices A and B for company-specific details and methodologies. **Note:** Affle is excluded from the calculation of Average EV/LTM Net Revenue due to its extremely high trading multiple.

MarTech – Q3 2022 Market Performance

Ranking – Highest to Lowest Share Price Increase / (Decrease) in %

	Company	Share Price ($USD) End of Q2 2022	Share Price ($USD) End of Q3 2022	% Increase Q3 % Increase / (Decrease)	Market Cap (US$mm) End of Q3 2022	EV / LTM Revenue End of Q2 2022	EV / LTM Revenue End of Q3 2022
1	Zeta Global	$4.52	$6.62	+46.3%	$1,837	2.7x	3.7x
2	Appier	$6.26	$8.39	+33.9%	$850	5.3x	6.6x
3	ZoomInfo	$33.24	$41.66	+25.3%	$17,244	17.5x	19.6x
4	Double Verify	$22.67	$27.32	+20.5%	$4,754	10.2x	11.7x
5	Coveo	$3.89	$4.40	+13.1%	$461	2.3x	2.5x
6	Kaltura	$1.99	$2.22	+11.6%	$310	1.2x	1.5x
7	Amplitude	$14.29	$15.46	+8.2%	$2,045	8.3x	8.5x
8	Sprout Social	$58.07	$60.72	+4.6%	$3,513	15.5x	15.2x
9	Zendesk	$74.07	$76.24	+2.9%	$9,976	6.9x	6.7x
10	Squarespace	$20.92	$21.32	+1.9%	$3,075	4.4x	4.2x
11	Brightcove	$6.32	$6.31	(0.2%)	$298	1.4x	1.4x
12	Braze	$36.23	$34.78	(4.0%)	$3,628	12.2x	11.9x
13	S&P 500	$3,785.38	$3,585.62	(5.3%)	NA	NA	NA
14	Yext	$4.78	$4.48	(6.3%)	$610	1.4x	1.4x
15	ON24	$9.49	$8.81	(7.2%)	$468	0.8x	0.7x
16	BigCommerce	$16.20	$14.80	(8.6%)	$1,147	5.3x	4.4x
17	Sprinklr	$10.11	$9.22	(8.8%)	$2,646	4.5x	4.0x
18	HubSpot	$300.65	$269.69	(10.3%)	$13,673	10.3x	8.6x
19	SEMrush	$12.93	$11.23	(13.1%)	$1,653	8.0x	6.3x
20	Shopify	$31.24	$26.92	(13.8%)	$34,435	7.0x	5.7x
21	Twilio	$83.81	$68.99	(17.7%)	$13,683	3.8x	3.1x
22	Qualtrics	$12.51	$10.19	(18.6%)	$6,785	6.6x	4.9x
23	Quotient Technologies	$2.97	$2.32	(22.1%)	$237	0.7x	0.6x
24	Integral Ad Science	$9.93	$7.24	(27.1%)	$1,184	5.1x	3.7x
25	LiveRamp	$25.81	$18.19	(29.5%)	$1,354	2.5x	1.6x
26	LivePerson	$14.14	$9.43	(33.3%)	$747	2.8x	2.1x
27	Momentive	$8.80	$5.81	(34.0%)	$917	3.2x	2.0x
28	Nogin	NA	$1.33	NA	$87	NA	NA
	Average			**(3.4%)**		**5.8x**	**5.5x**

Table of Contents

LUMA.A – Financial Benchmarking Overview

Observations

- The **LUMA.A** Index cohort now has 26 active companies; 4 of which **overlap** with the **LUMA.M** cohort.

- The average Enterprise Value of **LUMA.A** constituents is $3.2bn with the largest company being The Trade Desk ($29.5bn) and the smallest company being Acuity Ads ($39mm).

- **LUMA.A** companies have an average '22E Net Revenue of ~$660mm – down from previously projected $710mm as companies and analysts revise estimates amidst a potential global recession.

- The index currently trades at an average EV / '22 Net Revenue of 4.0x. Of the **LUMA.A** companies, Roku is currently expected to have the highest Revenues in '22E ($3.1bn), which is $600mm less than previously estimated.

- The Trade Desk is trading at the highest EV / '22E Net Revenue at 18.6x. Outbrain is trading at the lowest EV / '22E Net Revenue multiple at 0.3x. The average Net Revenue Growth Rate for '22E is 16.1%, a substantial drop from the average '21A Net Revenue Growth Rate of 43.9% during which companies were growing relative to a COVID-effected comparison period.

- **LUMA.A** companies have an average '22E EBITDA Margin of 22.4%.[3] AppLovin has the highest '22E EBITDA at $1.2bn. EBITDA Margins are expected to meaningfully contract versus the average for '21A EBITDA Margin of 29.1%.

Number of Companies	Average Enterprise Value
26 *Four overlap with LUMA.M*	**$3.2bn**

Average '22E Net Revenue[1]	Average EV / '22E Net Revenue[2]
~$660mm	**4.0x**

Average '22E Net Rev. Growth %	Average '22E EBITDA Margin %[3]
+16.1% *Down from +24.1% as of Q2'22*	**22.4%** *Down from 25.6% as of Q2'22*

LUMA.A – Summary Valuation Statistics

Company	Ticker	Exchange	Share Price	FD Market Cap	Enterprise Value	EV / Net Revenue CY2021A	CY2022E	CY2023E	EV / EBITDA CY2021A	CY2022E	CY2023E
Acuity Ads	ATY	NASDAQ	$1.72	$102	$38	0.8x	0.8x	0.7x	2.4x	4.8x	3.0x
AdTheorent	ADTH	NASDAQ	$2.15	$186	$130	1.2x	1.3x	1.0x	3.0x	5.6x	4.5x
Affle	AFFLE	BSE	$15.49	$2,064	$2,022	35.1x	NA	NA	NA	NA	NA
AppLovin	APP	NASDAQ	$19.49	$7,636	$9,978	3.6x	3.4x	2.8x	13.7x	8.7x	7.0x
Cardlytics	CDLX	NASDAQ	$9.40	$343	$738	7.1x	6.1x	5.1x	NM	NM	NM
Criteo	CRTO	NASDAQ	$27.03	$1,809	$1,383	1.5x	1.4x	1.2x	4.3x	4.8x	4.1x
Digital Turbine	APPS	NASDAQ	$14.41	$1,450	$1,852	5.9x	4.9x	4.0x	12.7x	9.1x	7.0x
DoubleVerify	DV	NYSE	$27.35	$4,748	$4,606	13.8x	10.3x	8.2x	42.0x	33.3x	26.4x
Innovid	CTV	NYSE	$2.71	$400	$375	4.2x	2.9x	2.3x	68.8x	NM	35.2x
Integral Ad Science	IAS	NASDAQ	$7.24	$1,181	$1,365	4.2x	3.4x	2.9x	13.2x	11.1x	9.3x
ironSource	IS	NYSE	$3.44	$3,757	$3,411	6.2x	4.5x	3.6x	17.6x	14.5x	10.8x
LiveRamp	RAMP	NYSE	$18.16	$1,344	$889	1.7x	1.5x	1.3x	18.8x	20.7x	13.4x
Magnite	MGNI	NASDAQ	$6.57	$945	$1,437	3.1x	2.8x	2.5x	9.4x	8.5x	7.2x
MediaAlpha	MAX	NYSE	$8.75	$675	$784	7.7x	11.8x	9.3x	13.5x	38.4x	20.9x
Media and Games Invest	M8G	NASDAQ	$1.55	$246	$426	1.5x	1.4x	1.3x	5.3x	4.9x	4.4x
Mobvista	1860	HKG	$0.50	$832	$780	6.0x	3.7x	2.9x	NM	23.5x	25.1x
Outbrain	OB	NASDAQ	$3.65	$215	$69	0.3x	0.3x	0.3x	0.8x	2.6x	1.9x
Perion Network	PERI	NASDAQ	$19.29	$916	$573	3.0x	2.3x	2.0x	8.2x	5.5x	4.7x
PubMatic	PUBM	NASDAQ	$16.63	$956	$802	3.5x	2.9x	2.4x	8.3x	7.7x	6.6x
Roku	ROKU	NASDAQ	$56.40	$8,241	$6,827	2.5x	2.2x	1.9x	14.7x	NM	NM
Taboola	TBLA	NASDAQ	$1.81	$468	$512	1.0x	0.8x	0.7x	2.9x	3.3x	2.9x
The Trade Desk	TTD	NASDAQ	$59.75	$30,367	$29,421	24.6x	18.5x	14.9x	58.5x	46.7x	38.2x
Tremor International	TRMR	LSE	$3.47	$579	$223	0.7x	0.7x	0.5x	1.4x	1.4x	1.1x
Unity Software	U	NYSE	$31.86	$10,436	$10,414	9.4x	7.9x	6.2x	NM	NM	NM
Viant	DSP	NASDAQ	$4.21	$278	$303	2.1x	2.1x	1.7x	8.2x	37.4x	12.8x
Zeta Global	ZETA	NYSE	$6.61	$1,836	$1,909	4.2x	3.4x	2.9x	30.2x	22.1x	16.9x
Average						**6.0x**	**4.0x**	**3.3x**	**16.3x**	**15.0x**	**12.0x**
Median						**3.6x**	**2.9x**	**2.4x**	**11.1x**	**8.7x**	**7.1x**
25th Percentile						**1.5x**	**1.4x**	**1.3x**	**4.6x**	**4.9x**	**4.4x**
75th Percentile						**6.1x**	**4.5x**	**3.6x**	**16.9x**	**22.1x**	**16.0x**

Source: FactSet (market data as of 9/30/2022), Company Filings. See Appendices A and B for company-specific details and methodologies.

LUMA.A – Valuation Statistics

Company:	acuity	ADTHEORENT	affle	APPLOVIN	cardlytics	CRITEO	Digital Turbine	DV DoubleVerify	INNOVID	IAS Integral Ad Science	ironSource	/LiveRamp	Magnite	MediaAlpha	Media and Games Invest Group	Mobvista	Outbrain	Perion	PubMatic	ROKU	Taboola	theTradeDesk	TREMOR INTERNATIONAL Ltd.	Unity	VIANT	ZETA
Ticker:	ATY	ADTH	AFFLE	APP	CDLX	CRTO	APPS	DV	CTV	IAS	IS	RAMP	MGNI	MAX	M8G	4128	OB	PERI	PUBM	ROKU	TBLA	TTD	TRMR	U	DSP	ZETA
Country:	🇨🇦	🇺🇸	🇮🇳	🇺🇸	🇺🇸	🇫🇷	🇺🇸	🇺🇸	🇺🇸	🇺🇸	🇮🇱	🇺🇸	🇺🇸	🇺🇸	🇲🇹	🇨🇳	🇮🇱	🇮🇱	🇺🇸	🇺🇸	🇮🇱	🇺🇸	🇬🇧	🇺🇸	🇺🇸	🇺🇸

Fully-Diluted Market Cap
($ in millions)

$3,154
Average

Values (by company):
- ATY: $103
- ADTH: $186
- AFFLE: $2,064
- APP: $7,666
- CDLX: $344
- CRTO: $1,803
- APPS: $1,457
- DV: $4,754
- CTV: $399
- IAS: $1,184
- IS: $3,786
- RAMP: $1,354
- MGNI: $950
- MAX: $682
- M8G: $246
- 4128: $832
- OB: $216
- PERI: $919
- PUBM: $962
- ROKU: $8,266
- TBLA: $468
- TTD: $30,489
- TRMR: $579
- U: $10,532
- DSP: $281
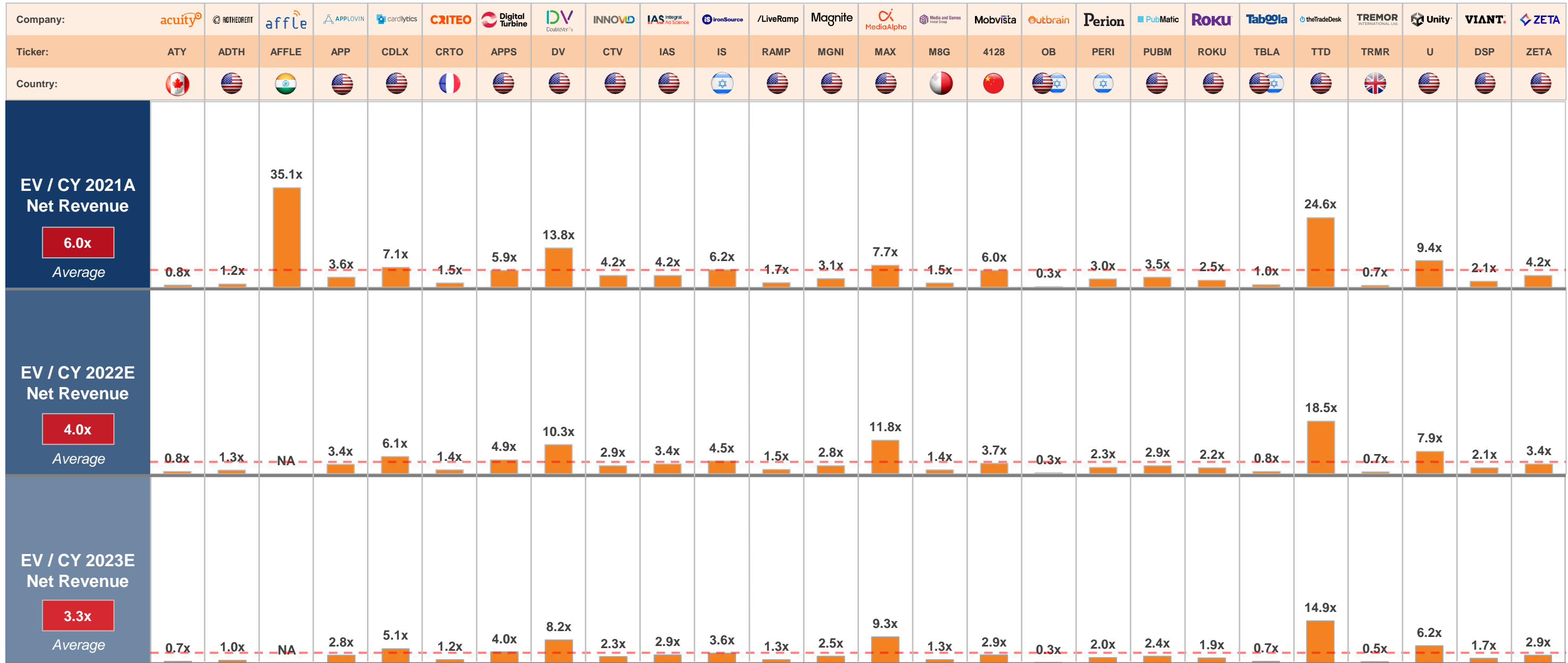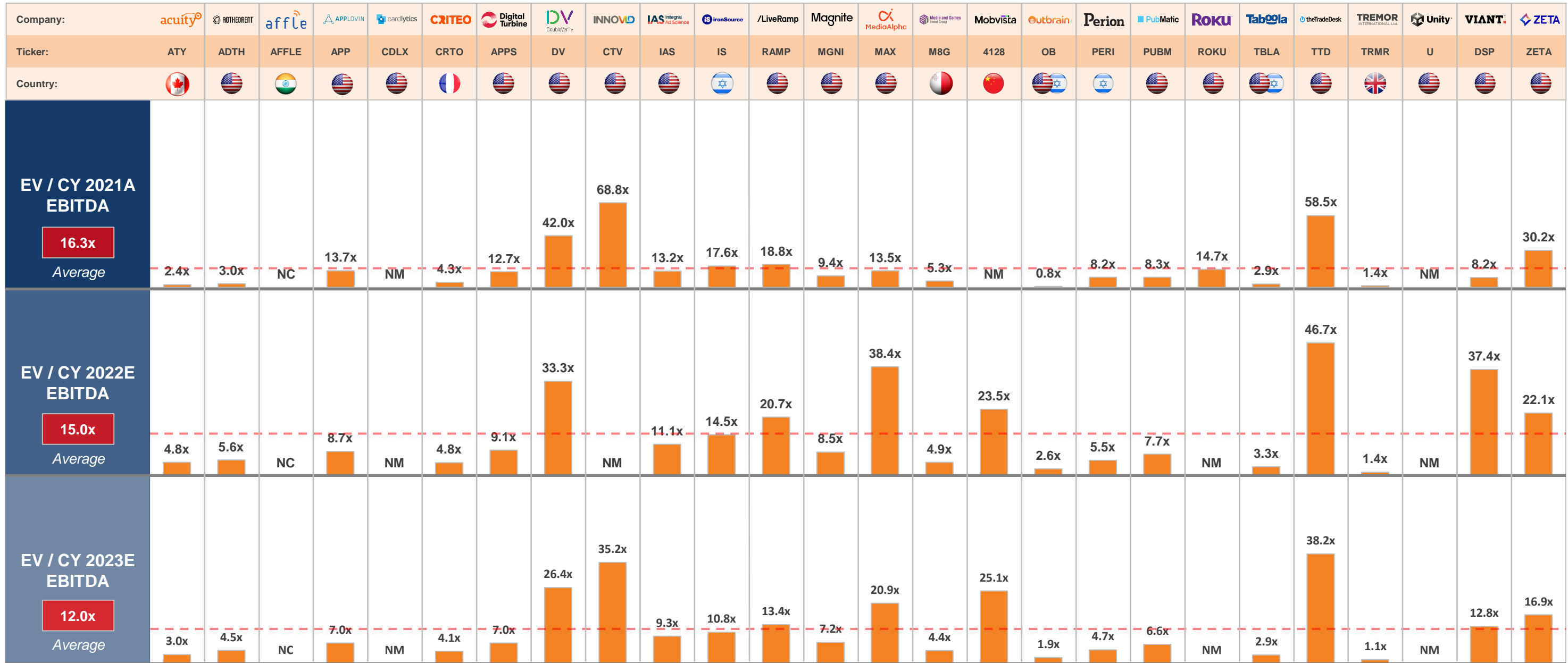- ZETA: $1,837
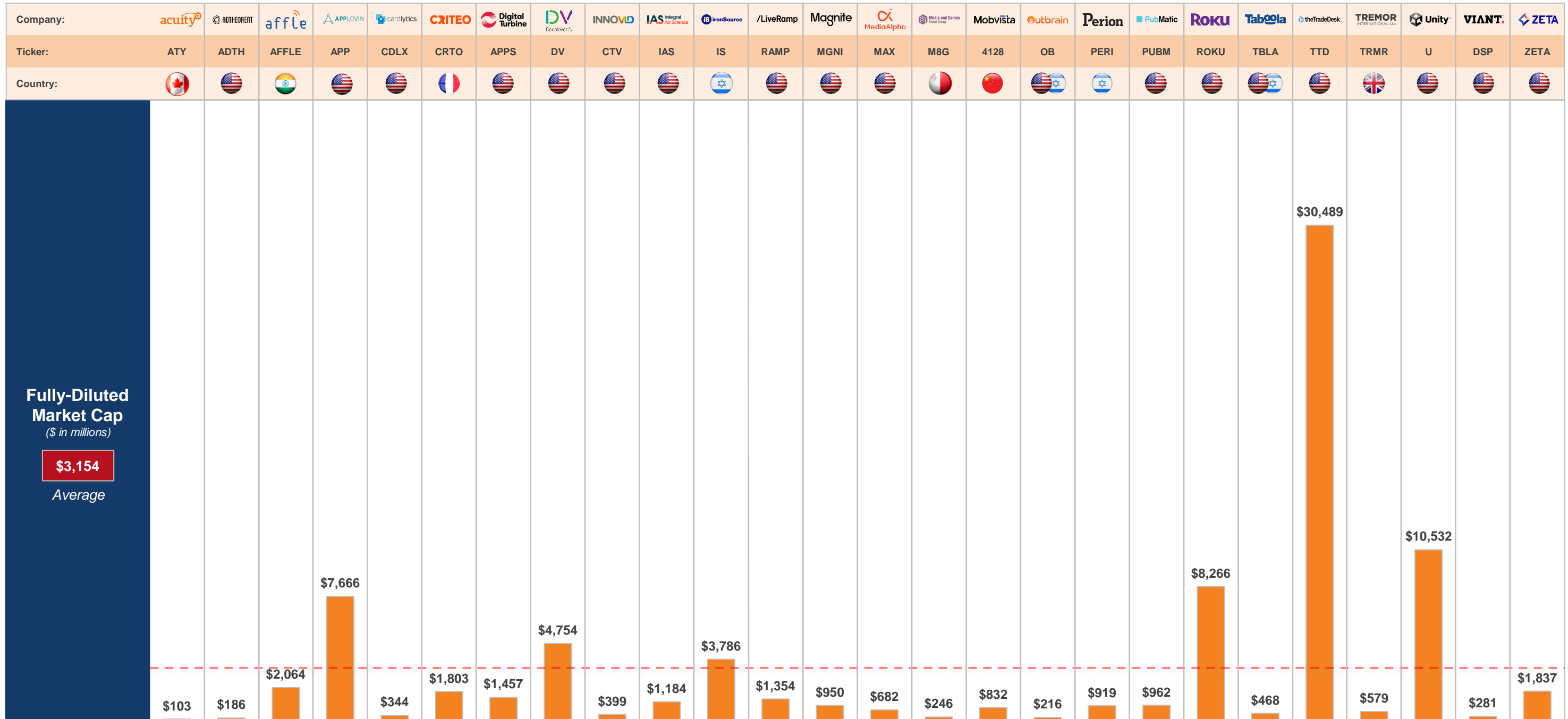
LUMA.A – EV / Net Revenue

IMPORTANT: FIGURES REFLECT DEFINITIONAL ADJUSTMENTS TO CONFORM TO CUSTOMARY FINANCIAL DEFINITIONS UTILIZED IN THE ADVERTISING TECHNOLOGY SUB-SECTOR. SEE APPENDIX A FOR DETAIL ON METHODOLOGY & DEFINITIONS.

Company:	acuity	ADTHEORENT	affle	APPLOVIN	cardlytics	CRITEO	Digital Turbine	DV DoubleVerify	INNOVID	IAS Integral Ad Science	ironSource	/LiveRamp	Magnite	MediaAlpha	Media and Games Invest Group	Mobvista	Outbrain	Perion	PubMatic	ROKU	Taboola	theTradeDesk	TREMOR INTERNATIONAL Ltd.	Unity	VIANT	ZETA
Ticker:	ATY	ADTH	AFFLE	APP	CDLX	CRTO	APPS	DV	CTV	IAS	IS	RAMP	MGNI	MAX	M8G	4128	OB	PERI	PUBM	ROKU	TBLA	TTD	TRMR	U	DSP	ZETA
Country:	🇨🇦	🇺🇸	🇮🇳	🇺🇸	🇺🇸	🇫🇷	🇺🇸	🇺🇸	🇺🇸	🇺🇸	🇮🇱	🇺🇸	🇺🇸	🇺🇸	🇲🇹	🇨🇳	🇺🇸/🇮🇱	🇮🇱	🇺🇸	🇺🇸	🇺🇸/🇮🇱	🇺🇸	🇬🇧	🇺🇸	🇺🇸	🇺🇸
EV / CY 2021A Net Revenue — Average 6.0x	0.8x	1.2x	35.1x	3.6x	7.1x	1.5x	5.9x	13.8x	4.2x	4.2x	6.2x	1.7x	3.1x	7.7x	1.5x	6.0x	0.3x	3.0x	3.5x	2.5x	1.0x	24.6x	0.7x	9.4x	2.1x	4.2x
EV / CY 2022E Net Revenue — Average 4.0x	0.8x	1.3x	NA	3.4x	6.1x	1.4x	4.9x	10.3x	2.9x	3.4x	4.5x	1.5x	2.8x	11.8x	1.4x	3.7x	0.3x	2.3x	2.9x	2.2x	0.8x	18.5x	0.7x	7.9x	2.1x	3.4x
EV / CY 2023E Net Revenue — Average 3.3x	0.7x	1.0x	NA	2.8x	5.1x	1.2x	4.0x	8.2x	2.3x	2.9x	3.6x	1.3x	2.5x	9.3x	1.3x	2.9x	0.3x	2.0x	2.4x	1.9x	0.7x	14.9x	0.5x	6.2x	1.7x	2.9x

Source: FactSet (market data as of 9/30/2022), Company Filings. See Appendices A and B for company-specific details and methodologies.

LUMA.A – EV / EBITDA

Company:	acuity	ADTHEORENT	affle	APPLOVIN	cardlytics	CRITEO	Digital Turbine	DV DoubleVerify	INNOVID	IAS Integral Ad Science	ironSource	/LiveRamp	Magnite	MediaAlpha	Media and Games Invest Group	Mobvista	Outbrain	Perion	PubMatic	ROKU	Taboola	theTradeDesk	TREMOR INTERNATIONAL Ltd.	Unity	VIANT	ZETA
Ticker:	ATY	ADTH	AFFLE	APP	CDLX	CRTO	APPS	DV	CTV	IAS	IS	RAMP	MGNI	MAX	M8G	4128	OB	PERI	PUBM	ROKU	TBLA	TTD	TRMR	U	DSP	ZETA
Country:	🇨🇦	🇺🇸	🇮🇳	🇺🇸	🇺🇸	🇫🇷	🇺🇸	🇺🇸	🇺🇸	🇺🇸	🇮🇱	🇺🇸	🇺🇸	🇺🇸	🇲🇹	🇨🇳	🇺🇸🇮🇱	🇮🇱	🇺🇸	🇺🇸	🇺🇸🇮🇱	🇺🇸	🇬🇧	🇺🇸	🇺🇸	🇺🇸

EV / CY 2021A EBITDA — 16.3x Average

ATY	ADTH	AFFLE	APP	CDLX	CRTO	APPS	DV	CTV	IAS	IS	RAMP	MGNI	MAX	M8G	4128	OB	PERI	PUBM	ROKU	TBLA	TTD	TRMR	U	DSP	ZETA
2.4x	3.0x	NC	13.7x	NM	4.3x	12.7x	42.0x	68.8x	13.2x	17.6x	18.8x	9.4x	13.5x	5.3x	NM	0.8x	8.2x	8.3x	14.7x	2.9x	58.5x	1.4x	NM	8.2x	30.2x

EV / CY 2022E EBITDA — 15.0x Average

ATY	ADTH	AFFLE	APP	CDLX	CRTO	APPS	DV	CTV	IAS	IS	RAMP	MGNI	MAX	M8G	4128	OB	PERI	PUBM	ROKU	TBLA	TTD	TRMR	U	DSP	ZETA
4.8x	5.6x	NC	8.7x	NM	4.8x	9.1x	33.3x	NM	11.1x	14.5x	20.7x	8.5x	38.4x	4.9x	23.5x	2.6x	5.5x	7.7x	NM	3.3x	46.7x	1.4x	NM	37.4x	22.1x

EV / CY 2023E EBITDA — 12.0x Average

ATY	ADTH	AFFLE	APP	CDLX	CRTO	APPS	DV	CTV	IAS	IS	RAMP	MGNI	MAX	M8G	4128	OB	PERI	PUBM	ROKU	TBLA	TTD	TRMR	U	DSP	ZETA
3.0x	4.5x	NC	7.0x	NM	4.1x	7.0x	26.4x	35.2x	9.3x	10.8x	13.4x	7.2x	20.9x	4.4x	25.1x	1.9x	4.7x	6.6x	NM	2.9x	38.2x	1.1x	NM	12.8x	16.9x

Source: FactSet (market data as of 9/30/2022), Company Filings. See Appendices A and B for company-specific details and methodologies.

LUMA.A – Net Revenue

Company:	acuity	ADTHEORENT	affle	APPLOVIN	cardlytics	CRITEO	Digital Turbine	DV DoubleVerify	INNOVID	IAS Integral Ad Science	ironSource	/LiveRamp	Magnite	MediaAlpha	Media and Games Invest Group	Mobvista	Outbrain	Perion	PubMatic	Roku	Taboola	theTradeDesk	TREMOR INTERNATIONAL Ltd.	Unity	VIANT	ZETA
Ticker:	ATY	ADTH	AFFLE	APP	CDLX	CRTO	APPS	DV	CTV	IAS	IS	RAMP	MGNI	MAX	M8G	4128	OB	PERI	PUBM	ROKU	TBLA	TTD	TRMR	U	DSP	ZETA
Country:	🇨🇦	🇺🇸	🇮🇳	🇺🇸	🇺🇸	🇫🇷	🇺🇸	🇺🇸	🇺🇸	🇺🇸	🇮🇱	🇺🇸	🇺🇸	🇺🇸	🇲🇹	🇨🇳	🇮🇱	🇮🇱	🇺🇸	🇺🇸	🇮🇱	🇺🇸	🇬🇧	🇺🇸	🇺🇸	🇺🇸

CY 2021A Net Revenue ($ in millions) — Average **$553**

ATY	ADTH	AFFLE	APP	CDLX	CRTO	APPS	DV	CTV	IAS	IS	RAMP	MGNI	MAX	M8G	4128	OB	PERI	PUBM	ROKU	TBLA	TTD	TRMR	U	DSP	ZETA
$50	$109	$58	$2,793	$104	$921	$313	$333	$90	$324	$553	$529	$458	$102	$283	$130	$272	$190	$227	$2,765	$519	$1,196	$302	$1,111	$142	$458

CY 2022E Net Revenue ($ in millions) — Average **$661**

ATY	ADTH	AFFLE	APP	CDLX	CRTO	APPS	DV	CTV	IAS	IS	RAMP	MGNI	MAX	M8G	4128	OB	PERI	PUBM	ROKU	TBLA	TTD	TRMR	U	DSP	ZETA
$49	$100	NA	$2,974	$122	$973	$380	$449	$130	$400	$765	$592	$508	$67	$302	$213	$230	$251	$279	$3,118	$605	$1,590	$316	$1,318	$143	$563

CY 2023E Net Revenue ($ in millions) — Average **$791**

ATY	ADTH	AFFLE	APP	CDLX	CRTO	APPS	DV	CTV	IAS	IS	RAMP	MGNI	MAX	M8G	4128	OB	PERI	PUBM	ROKU	TBLA	TTD	TRMR	U	DSP	ZETA
$56	$126	NA	$3,551	$144	$1,108	$466	$560	$162	$470	$957	$671	$583	$84	$337	$269	$258	$292	$332	$3,641	$704	$1,977	$444	$1,679	$174	$667

	ATY	ADTH	AFFLE	APP	CDLX	CRTO	APPS	DV	CTV	IAS	IS	RAMP	MGNI	MAX	M8G	4128	OB	PERI	PUBM	ROKU	TBLA	TTD	TRMR	U	DSP	ZETA
'22E Growth % YoY	(1%)	(8%)	NA	6%	17%	6%	22%	35%	44%	24%	38%	12%	11%	(34%)	7%	64%	(15%)	32%	23%	13%	17%	33%	5%	19%	1%	23%
'23E Growth % YoY	14%	25%	NA	19%	18%	14%	23%	25%	25%	17%	25%	13%	15%	27%	11%	26%	12%	16%	19%	17%	16%	24%	40%	27%	21%	18%
'21A - '23E CAGR %	6%	7%	NA	13%	17%	10%	22%	30%	34%	21%	31%	13%	13%	(9%)	9%	44%	(3%)	24%	21%	15%	16%	29%	21%	23%	11%	21%

Source: FactSet (market data as of 9/30/2022), Company Filings. See Appendices A and B for company-specific details and methodologies.

LUMA.A – EBITDA Margin (NR Basis)[1]

Company	acuity	ADTHEORENT	affle	APPLOVIN	cardlytics	CRITEO	Digital Turbine	DV	INNOVID	IAS	ironSource	LiveRamp	Magnite	MediaAlpha	Media and Games	Mobvista	Outbrain	Perion	PubMatic	Roku	Taboola	theTradeDesk	TREMOR	Unity	VIANT	ZETA
Ticker	ATY	ADTH	AFFLE	APP	CDLX	CRTO	APPS	DV	CTV	IAS	IS	RAMP	MGNI	MAX	M8G	4128	OB	PERI	PUBM	ROKU	TBLA	TTD	TRMR	U	DSP	ZETA
CY 2021A EBITDA Margin (Net Revenue Basis) — Average 28.2%	31.9%	39.3%	NC	26.0%	(11.7%)	35.0%	46.7%	33.0%	6.0%	31.9%	35.1%	9.0%	33.2%	57.3%	28.2%	6.5%	32.7%	36.5%	42.4%	16.8%	34.6%	42.0%	53.4%	(1.7%)	26.2%	13.8%
CY 2022E EBITDA Margin (Net Revenue Basis) — Average 22.4%	16.1%	23.0%	NC	38.5%	(26.8%)	29.7%	53.4%	30.8%	(3.9%)	30.6%	30.8%	7.3%	33.3%	30.7%	29.0%	15.6%	11.7%	41.3%	37.3%	(2.1%)	25.6%	39.6%	49.8%	(2.5%)	5.7%	15.3%
CY 2023E EBITDA Margin (Net Revenue Basis) — Average 25.8%	22.6%	23.3%	NC	40.3%	1.6%	30.3%	56.6%	31.2%	6.6%	31.1%	32.9%	9.9%	34.0%	44.5%	29.0%	11.5%	14.1%	42.1%	36.8%	0.3%	25.5%	39.0%	43.9%	6.9%	13.6%	17.0%
'21A Change (bps)	271	NA	NA	221	48	460	1440	297	NA	NA	NA	321	1194	(1072)	744	1609	NA	1141	859	839	NA	808	2484	163	(255)	NA
'22E Change (bps)	(1583)	(1631)	NA	1247	(1506)	(536)	667	(217)	(996)	(133)	(426)	(172)	11	(2663)	76	904	(2094)	473	(511)	(1891)	(900)	(238)	(356)	(87)	(2057)	153
'23E Change (bps)	647	32	NA	177	2841	63	319	37	1051	50	206	261	68	1386	6	(405)	232	79	(50)	240	(11)	(64)	(595)	938	795	162

Source: FactSet (market data as of 9/30/2022), Company Filings. Note: EBITDA margins calculated with "Net Revenue" as denominator, and therefore may not correspond to a given company's reported EBITDA margin. "NC" denotes not calculated. See Appendices A and B for details on methodology.

LUMA.A – Summary Financial Statistics

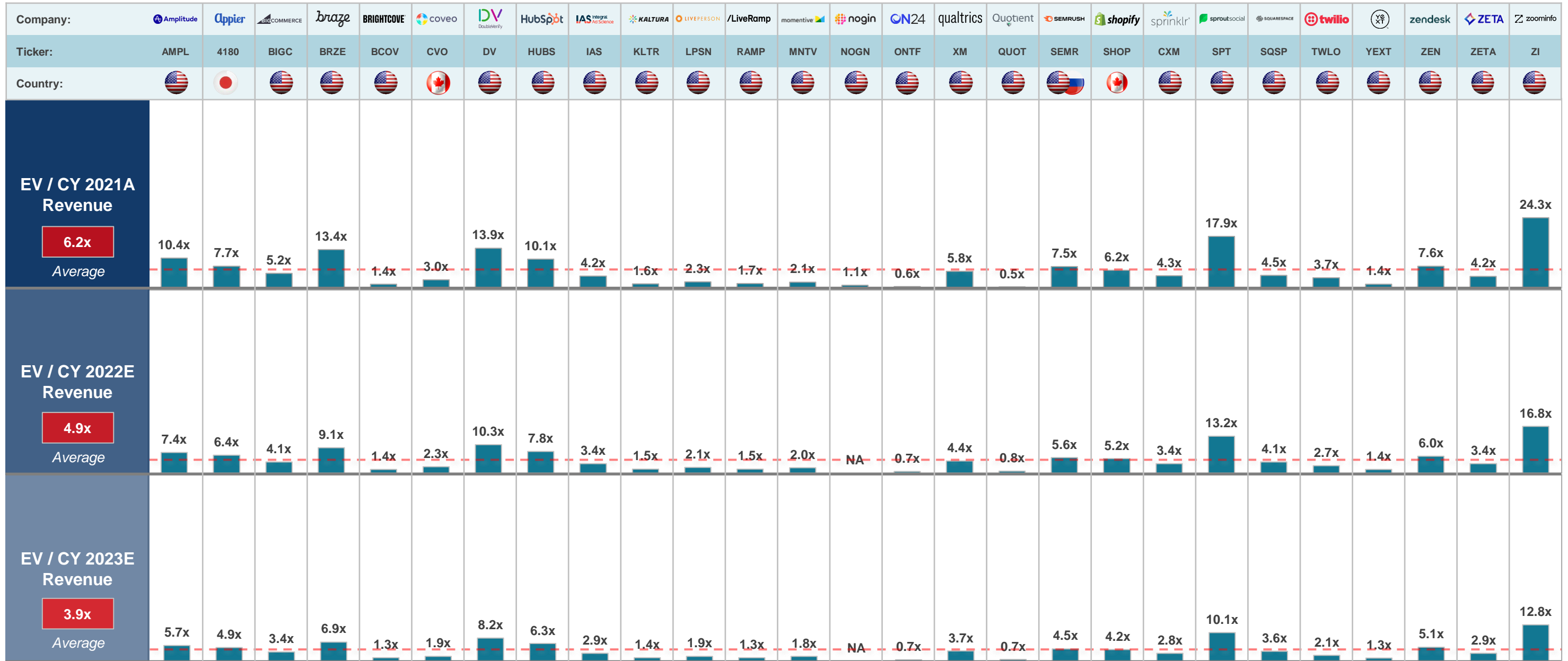| Company	Ticker	Net Revenue			Net Revenue Growth %			EBITDA			EBITDA Margin %		
		CY2021A	CY2022E	CY2023E	CY2021A	CY2022E	CY2023E	CY2021A	CY2022E	CY2023E	CY2021A	CY2022E	CY2023E
Acuity Ads	ATY	$50	$49	$56	16.1%	(0.5%)	13.5%	$16	$8	$13	31.9%	16.1%	13.5%
AdTheorent	ADTH	$109	$100	$126	NA	(8.1%)	24.9%	$43	$23	$29	39.3%	23.0%	24.9%
Affle	AFFLE	$58	NA	NA	108.2%	NA	NA	NC	NC	NC	NC	NC	NC
AppLovin	APP	$2,793	$2,974	$3,551	92.5%	6.5%	19.4%	$727	$1,145	$1,430	26.0%	38.5%	19.4%
Cardlytics	CDLX	$104	$122	$144	63.2%	16.6%	18.3%	($12)	($33)	$2	(11.7%)	(26.8%)	18.3%
Criteo	CRTO	$921	$973	$1,108	11.6%	5.7%	13.8%	$322	$289	$335	35.0%	29.7%	13.8%
Digital Turbine	APPS	$313	$380	$466	35.9%	21.5%	22.5%	$146	$203	$264	46.7%	53.4%	22.5%
DoubleVerify	DV	$333	$449	$560	36.4%	35.0%	24.6%	$110	$138	$174	33.0%	30.8%	24.6%
Innovid	CTV	$90	$130	$162	31.2%	43.9%	24.6%	$5	($5)	$11	6.0%	(3.9%)	24.6%
Integral Ad Science	IAS	$324	$400	$470	34.4%	23.8%	17.3%	$103	$123	$146	31.9%	30.6%	17.3%
ironSource	IS	$553	$765	$957	68.1%	38.2%	25.1%	$194	$236	$314	35.1%	30.8%	25.1%
LiveRamp	RAMP	$529	$592	$671	19.3%	11.9%	13.4%	$47	$43	$66	9.0%	7.3%	13.4%
Magnite	MGNI	$458	$508	$583	28.7%	10.9%	14.9%	$152	$169	$198	33.2%	33.3%	14.9%
MediaAlpha	MAX	$102	$67	$84	18.9%	(34.4%)	26.7%	$58	$20	$38	57.3%	30.7%	26.7%
Media and Games Invest	M8G	$283	$302	$337	67.3%	6.8%	11.4%	$80	$88	$98	28.2%	29.0%	11.4%
Mobvista	1860	$130	$213	$269	58.5%	63.8%	26.3%	$9	$33	$31	6.5%	15.6%	26.3%
Outbrain	OB	$272	$230	$258	40.0%	(15.5%)	12.0%	$89	$27	$36	32.7%	11.7%	12.0%
Perion Network	PERI	$190	$251	$292	46.0%	32.0%	16.2%	$70	$104	$123	36.5%	41.3%	16.2%
PubMatic	PUBM	$227	$279	$332	52.6%	22.8%	19.0%	$96	$104	$122	42.4%	37.3%	19.0%
Roku	ROKU	$2,765	$3,118	$3,641	55.5%	12.8%	16.8%	$465	($65)	$12	16.8%	(2.1%)	16.8%
Taboola	TBLA	$519	$605	$704	35.7%	16.6%	16.4%	$179	$155	$179	34.6%	25.6%	16.4%
The Trade Desk	TTD	$1,196	$1,590	$1,977	43.1%	32.9%	24.4%	$503	$630	$771	42.0%	39.6%	24.4%
Tremor International	TRMR	$302	$316	$444	42.5%	4.8%	40.2%	$161	$158	$195	53.4%	49.8%	40.2%
Unity Software	U	$1,111	$1,318	$1,679	43.8%	18.7%	27.3%	($18)	($33)	$115	(1.7%)	(2.5%)	27.3%
Viant	DSP	$142	$143	$174	28.1%	1.2%	21.3%	$37	$8	$24	26.2%	5.7%	21.3%
Zeta Global	ZETA	$458	$563	$667	24.5%	22.9%	18.4%	$63	$86	$113	13.8%	15.3%	18.4%
Average					**44.1%**	**15.6%**	**20.3%**				**28.2%**	**22.4%**	**20.3%**
Median					**40.0%**	**16.6%**	**19.0%**				**32.7%**	**29.0%**	**19.0%**
25th Percentile					**28.7%**	**5.7%**	**16.2%**				**16.8%**	**11.7%**	**16.2%**
75th Percentile					**55.5%**	**23.8%**	**24.6%**				**36.5%**	**33.3%**	**24.6%**

Source: FactSet (market data as of 9/30/2022), Company Filings. See Appendices A and B for company-specific details and methodologies.

LUMA.A – Summary Financial Statistics

IMPORTANT: FIGURES REFLECT DEFINITIONAL ADJUSTMENTS TO CONFORM TO CUSTOMARY FINANCIAL DEFINITIONS UTILIZED IN THE ADVERTISING TECHNOLOGY SUB-SECTOR. SEE APPENDIX A FOR DETAIL ON METHODOLOGY & DEFINITIONS.

Company	Ticker	R&D Expense % of Net Revenue			G&A Expense % of Net Revenue			S&M Expense % of Net Revenue		
		CY2021A	CY2022E	CY2023E	CY2021A	CY2022E	CY2023E	CY2021A	CY2022E	CY2023E
Acuity Ads	ATY	19.9%	24.6%	23.5%	13.9%	22.4%	22.1%	35.0%	38.0%	34.6%
AdTheorent	ADTH	11.3%	17.3%	15.1%	32.4%	19.1%	18.7%	35.5%	44.8%	40.1%
Affle	AFFLE	NA	NA	NA	NA	NA	NA	NA	NA	NA
AppLovin	APP	10.9%	16.4%	15.4%	3.8%	5.1%	4.9%	39.1%	31.9%	26.9%
Cardlytics	CDLX	26.7%	33.7%	28.1%	40.2%	52.9%	39.3%	50.1%	55.5%	43.5%
Criteo	CRTO	16.5%	15.2%	15.4%	16.6%	13.9%	14.0%	35.4%	38.2%	37.3%
Digital Turbine	APPS	16.8%	15.2%	12.6%	44.4%	32.2%	28.1%	20.2%	16.9%	15.1%
DoubleVerify	DV	17.5%	18.1%	17.6%	18.5%	15.2%	13.5%	21.3%	21.2%	20.7%
Innovid	CTV	16.8%	15.2%	12.6%	44.4%	32.2%	28.1%	20.2%	16.9%	15.1%
Integral Ad Science	IAS	19.0%	16.9%	17.0%	19.6%	16.0%	15.2%	24.4%	23.4%	22.4%
ironSource	IS	16.4%	14.8%	14.2%	14.9%	8.8%	9.3%	37.7%	36.1%	34.5%
LiveRamp	RAMP	23.8%	25.4%	24.5%	15.5%	15.6%	15.3%	29.2%	30.7%	29.1%
Magnite	MGNI	13.7%	17.5%	17.1%	11.7%	14.3%	14.4%	33.8%	34.0%	31.2%
MediaAlpha	MAX	15.0%	30.0%	25.0%	60.4%	68.5%	55.1%	22.5%	42.6%	35.1%
Media and Games Invest	M8G	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mobvista	1860	53.1%	48.4%	40.9%	21.5%	21.8%	22.3%	36.2%	37.8%	35.3%
Outbrain	OB	14.3%	18.2%	18.2%	26.0%	23.6%	19.5%	35.2%	47.2%	40.4%
Perion Network	PERI	18.5%	14.6%	14.3%	11.0%	10.5%	10.6%	27.9%	24.5%	22.9%
PubMatic	PUBM	7.0%	7.5%	8.2%	15.8%	15.7%	15.5%	25.6%	26.7%	26.2%
Roku	ROKU	16.7%	24.3%	24.2%	9.3%	10.6%	10.6%	16.5%	23.3%	23.0%
Taboola	TBLA	22.7%	21.3%	19.8%	25.1%	17.0%	14.8%	39.7%	41.3%	35.7%
The Trade Desk	TTD	14.1%	16.5%	16.3%	13.5%	18.0%	14.9%	16.6%	18.4%	18.0%
Tremor International	TRMR	6.1%	10.0%	13.7%	21.0%	18.6%	21.0%	24.7%	27.0%	27.7%
Unity Software	U	42.9%	52.7%	46.4%	18.7%	17.7%	16.1%	23.1%	25.6%	23.7%
Viant	DSP	9.2%	11.8%	11.1%	20.6%	28.5%	23.6%	27.8%	42.6%	37.4%
Zeta Global	ZETA	42.9%	52.7%	46.4%	18.7%	17.7%	16.1%	23.1%	25.6%	23.7%
Average		**19.7%**	**22.4%**	**20.7%**	**22.4%**	**21.5%**	**19.3%**	**29.2%**	**32.1%**	**29.2%**
Median		**16.8%**	**17.4%**	**17.0%**	**18.7%**	**17.7%**	**15.8%**	**27.9%**	**31.3%**	**28.4%**
25th Percentile		**14.0%**	**15.2%**	**14.3%**	**14.7%**	**15.0%**	**14.3%**	**22.9%**	**24.2%**	**22.9%**
75th Percentile		**20.6%**	**24.8%**	**24.3%**	**25.3%**	**22.7%**	**22.2%**	**35.4%**	**39.0%**	**35.4%**

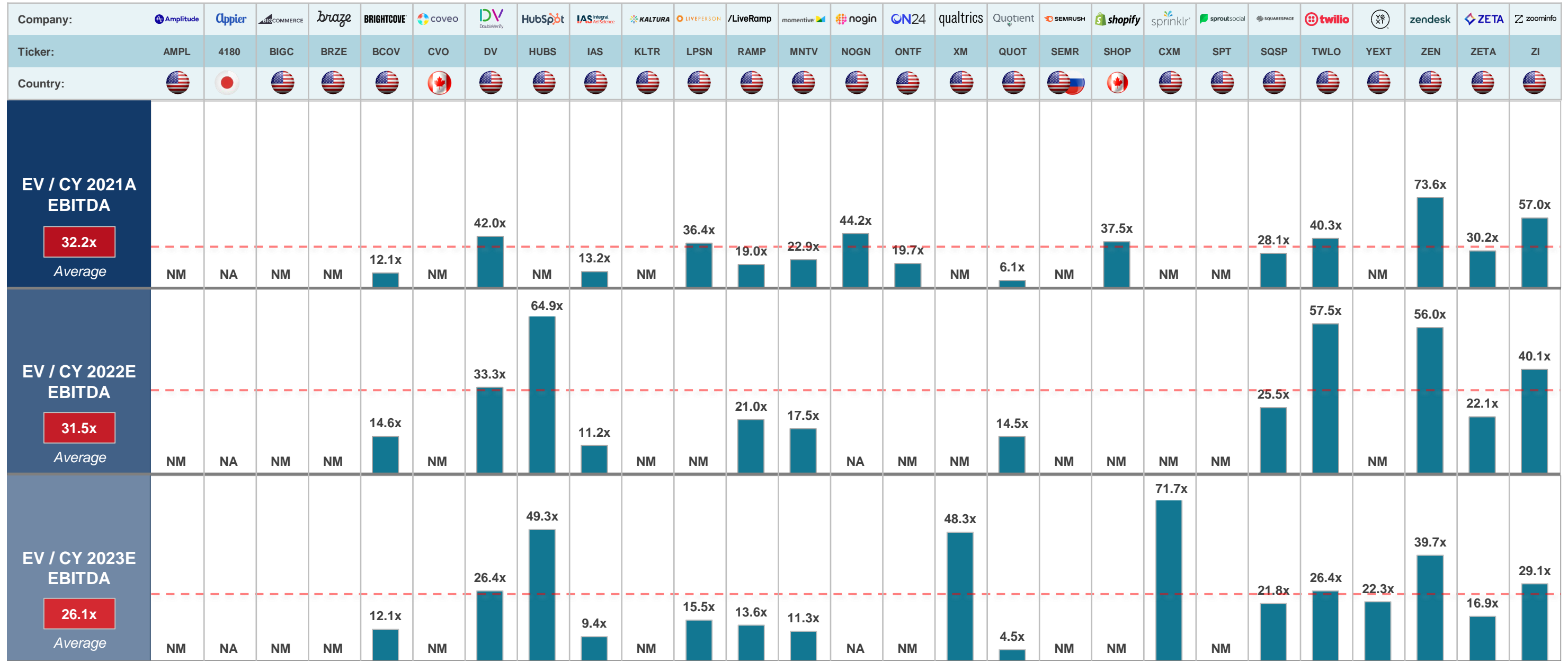**Source:** FactSet (market data as of 9/30/2022), Company Filings. See Appendices A and B for company-specific details and methodologies.

Table of Contents

LUMA.M – Financial Benchmarking Overview

Observations

- The **LUMA.M** Index cohort now has 27 companies after Nogin's de-SPAC -- 4 of which **overlap** with the **LUMA.A** cohort.

- The average Enterprise Value of **LUMA.M** constituents is $4.3bn with the largest company being Shopify ($28.7bn) and the smallest company being the newest entrant, Nogin ($113mm).

- **LUMA.M** companies have an average '22E Revenue of ~$870mm at an average EV / '22 Revenue of 4.9x. Of the **LUMA.M** companies, Shopify is expected to have the highest Revenue in '22E ($5.5bn).

- ZoomInfo is trading at the highest EV / '22E Revenue at 16.8x. ON24 is trading at the lowest EV / '22E Revenue multiple at 0.7x. The average Revenue Growth Rate for '22E is 20.3% a significant drop from the average '21A Revenue Growth Rate of 39.0% during which companies were growing relative to a COVID-effected comparison period.

- **LUMA.M** companies have an average '22E EBITDA of $55mm at an average '22E EBITDA Margin of 3.4%. Zoominfo has the highest '22E EBITDA at $432mm. Average EBITDA Margins are expected to drop as the average '21A EBITDA Margin was 6.8% of revenue, versus the average '22E EBITDA Margin of 3.4% of revenue.

Number of Companies	Average Enterprise Value
27 *Four overlap with LUMA.M*	**$4.3bn**

Average '22E Net Revenue[1]	Average EV / '22E Revenue
~$870mm	**4.9x**

Average '22E Revenue Growth %	Average '22E EBITDA Margin %
+20.3% *Down from +21.6% in Q2'22*	**3.4%** *Up from 2.9% in Q2'22*

LUMA.M – Summary Valuation Statistics

Company	Ticker	Exchange	Share Price	FD Market Cap	Enterprise Value	EV / Revenue CY2021A	EV / Revenue CY2022E	EV / Revenue CY2023E	EV / EBITDA CY2021A	EV / EBITDA CY2022E	EV / EBITDA CY2023E
Amplitude	AMPL	NASDAQ	$15.47	$2,041	$1,740	10.4x	7.4x	5.7x	NM	NM	NM
Appier	4180	TYO	$8.39	$850	$840	7.7x	6.4x	4.9x	NA	NA	NA
BigCommerce	BIGC	NASDAQ	$14.80	$1,147	$1,139	5.2x	4.1x	3.4x	NM	NM	NM
Braze	BRZE	NASDAQ	$34.83	$3,632	$3,183	13.4x	9.1x	6.9x	NM	NM	NM
Brightcove	BCOV	NASDAQ	$6.30	$296	$292	1.4x	1.4x	1.3x	12.1x	14.5x	12.1x
Coveo	CVO	TSE	$4.40	$461	$255	3.0x	2.3x	1.8x	NM	NM	NM
Double Verify	DV	NYSE	$27.35	$4,748	$4,606	13.8x	10.3x	8.2x	42.0x	33.3x	26.4x
Hubspot	HUBS	NYSE	$270.12	$13,637	$13,137	10.1x	7.8x	6.3x	NM	64.7x	49.2x
Integral Ad Science	IAS	NASDAQ	$7.24	$1,181	$1,365	4.2x	3.4x	2.9x	13.2x	11.1x	9.3x
Kaltura	KLTR	NASDAQ	$2.20	$308	$256	1.6x	1.5x	1.4x	NM	NM	NM
LivePerson	LPSN	NASDAQ	$9.42	$745	$1,060	2.3x	2.1x	1.9x	36.4x	NM	15.5x
LiveRamp	RAMP	NYSE	$18.16	$1,344	$889	1.7x	1.5x	1.3x	18.8x	20.7x	13.4x
Momentive	MNTV	NASDAQ	$5.81	$918	$946	2.1x	2.0x	1.8x	22.9x	17.5x	11.3x
Nogin	NOGN	NASDAQ	$1.35	$90	$116	1.1x	NA	NA	45.2x	NA	NM
ON24	ONTF	NYSE	$8.80	$468	$131	0.6x	0.7x	0.7x	19.7x	NM	NM
Qualtrics	XM	NASDAQ	$10.18	$6,749	$6,249	5.8x	4.4x	3.7x	NM	NM	48.0x
Quotient	QUOT	NYSE	$2.31	$236	$244	0.5x	0.8x	0.7x	6.0x	14.4x	4.4x
SEMrush	SEMR	NYSE	$11.21	$1,659	$1,410	7.5x	5.6x	4.5x	NM	NM	NM
Shopify	SHOP	TSE	$26.94	$34,320	$28,558	6.2x	5.2x	4.2x	37.4x	NM	NM
Sprinklr	CXM	NYSE	$9.22	$2,638	$2,107	4.3x	3.4x	2.8x	NM	NM	71.4x
SproutSocial	SPT	NASDAQ	$60.68	$3,484	$3,334	17.7x	13.1x	10.1x	NM	NM	NM
Squarespace	SQSP	NYSE	$21.36	$3,079	$3,521	4.5x	4.1x	3.6x	28.1x	25.5x	21.8x
Twilio	TWLO	NYSE	$69.14	$13,664	$10,498	3.7x	2.7x	2.1x	40.2x	57.4x	26.3x
Yext	YEXT	NYSE	$4.46	$605	$542	1.4x	1.4x	1.3x	NM	NM	22.1x
Zendesk	ZEN	NYSE	$76.10	$9,960	$10,162	7.6x	6.1x	5.2x	73.5x	55.9x	39.7x
Zeta	ZETA	NYSE	$6.61	$1,836	$1,909	4.2x	3.4x	2.9x	30.2x	22.1x	16.9x
ZoomInfo	ZI	NASDAQ	$41.66	$17,108	$18,046	24.2x	16.6x	12.7x	56.5x	39.8x	28.9x
Average						**6.1x**	**4.9x**	**3.9x**	**32.2x**	**31.4x**	**26.1x**
Median						**4.3x**	**3.7x**	**3.1x**	**30.2x**	**23.8x**	**21.9x**
25th Percentile						**1.9x**	**2.0x**	**1.8x**	**19.2x**	**16.8x**	**13.1x**
75th Percentile						**7.6x**	**6.3x**	**5.1x**	**41.1x**	**43.8x**	**31.6x**

LUMA.M – Valuation Statistics

Company:	Amplitude	Appier	BIGCOMMERCE	braze	BRIGHTCOVE	coveo	DV DoubleVerify	HubSpot	IAS Integral Ad Science	KALTURA	LIVEPERSON	/LiveRamp	momentive	nogin	ON24	qualtrics	Quotient	SEMRUSH	shopify	sprinklr	sprout social	SQUARESPACE	twilio	YEXT	zendesk	ZETA	zoominfo
Ticker:	AMPL	4180	BIGC	BRZE	BCOV	CVO	DV	HUBS	IAS	KLTR	LPSN	RAMP	MNTV	NOGN	ONTF	XM	QUOT	SEMR	SHOP	CXM	SPT	SQSP	TWLO	YEXT	ZEN	ZETA	ZI
Country:	🇺🇸	🇯🇵	🇺🇸	🇺🇸	🇺🇸	🇨🇦	🇺🇸	🇺🇸	🇺🇸	🇺🇸	🇺🇸	🇺🇸	🇺🇸	🇺🇸	🇺🇸	🇺🇸	🇺🇸	🇺🇸🇷🇺	🇨🇦	🇺🇸	🇺🇸	🇺🇸	🇺🇸	🇺🇸	🇺🇸	🇺🇸	🇺🇸

Fully-Diluted Market Cap
($ in millions)

$4,727

Average

Company	Value
AMPL	$2,045
4180	$850
BIGC	$1,147
BRZE	$3,628
BCOV	$298
CVO	$461
DV	$4,754
HUBS	$13,673
IAS	$1,184
KLTR	$310
LPSN	$747
RAMP	$1,354
MNTV	$917
NOGN	$87
ONTF	$468
XM	$6,785
QUOT	$237
SEMR	$1,653
SHOP	$34,435
CXM	$2,646
SPT	$3,513
SQSP	$3,075
TWLO	$13,683
YEXT	$610
ZEN	$9,976
ZETA	$1,837
ZI	$17,244

LUMA.M – EV / Revenue

Company:	Amplitude	Appier	BIGCOMMERCE	braze	BRIGHTCOVE	coveo	DV DoubleVerify	HubSpot	IAS Integral Ad Science	KALTURA	LIVEPERSON	/LiveRamp	momentive	nogin	ON24	qualtrics	Quotient	SEMRUSH	shopify	sprinklr	sprout social	squarespace	twilio	YEXT	zendesk	ZETA	zoominfo
Ticker:	AMPL	4180	BIGC	BRZE	BCOV	CVO	DV	HUBS	IAS	KLTR	LPSN	RAMP	MNTV	NOGN	ONTF	XM	QUOT	SEMR	SHOP	CXM	SPT	SQSP	TWLO	YEXT	ZEN	ZETA	ZI
Country:	🇺🇸	🇯🇵	🇺🇸	🇺🇸	🇺🇸	🇨🇦	🇺🇸	🇺🇸	🇺🇸	🇺🇸	🇺🇸	🇺🇸	🇺🇸	🇺🇸	🇺🇸	🇺🇸	🇺🇸	🇺🇸🇷🇺	🇨🇦	🇺🇸	🇺🇸	🇺🇸	🇺🇸	🇺🇸	🇺🇸	🇺🇸	🇺🇸
EV / CY 2021A Revenue — **6.2x** *Average*	10.4x	7.7x	5.2x	13.4x	1.4x	3.0x	13.9x	10.1x	4.2x	1.6x	2.3x	1.7x	2.1x	1.1x	0.6x	5.8x	0.5x	7.5x	6.2x	4.3x	17.9x	4.5x	3.7x	1.4x	7.6x	4.2x	24.3x
EV / CY 2022E Revenue — **4.9x** *Average*	7.4x	6.4x	4.1x	9.1x	1.4x	2.3x	10.3x	7.8x	3.4x	1.5x	2.1x	1.5x	2.0x	NA	0.7x	4.4x	0.8x	5.6x	5.2x	3.4x	13.2x	4.1x	2.7x	1.4x	6.0x	3.4x	16.8x
EV / CY 2023E Revenue — **3.9x** *Average*	5.7x	4.9x	3.4x	6.9x	1.3x	1.9x	8.2x	6.3x	2.9x	1.4x	1.9x	1.3x	1.8x	NA	0.7x	3.7x	0.7x	4.5x	4.2x	2.8x	10.1x	3.6x	2.1x	1.3x	5.1x	2.9x	12.8x

LUMA.M – EV / EBITDA

Company:	Amplitude	Appier	BIGCOMMERCE	braze	BRIGHTCOVE	coveo	DV DoubleVerify	HubSpot	IAS Integral Ad Science	KALTURA	LIVEPERSON	/LiveRamp	momentive	nogin	ON24	qualtrics	Quotient	SEMRUSH	shopify	sprinklr	sprout social	SQUARESPACE	twilio	YEXT	zendesk	ZETA	zoominfo
Ticker:	AMPL	4180	BIGC	BRZE	BCOV	CVO	DV	HUBS	IAS	KLTR	LPSN	RAMP	MNTV	NOGN	ONTF	XM	QUOT	SEMR	SHOP	CXM	SPT	SQSP	TWLO	YEXT	ZEN	ZETA	ZI
Country:	🇺🇸	🇯🇵	🇺🇸	🇺🇸	🇺🇸	🇨🇦	🇺🇸	🇺🇸	🇺🇸	🇺🇸	🇺🇸	🇺🇸	🇺🇸	🇺🇸	🇺🇸	🇺🇸	🇺🇸	🇺🇸🇷🇺	🇨🇦	🇺🇸	🇺🇸	🇺🇸	🇺🇸	🇺🇸	🇺🇸	🇺🇸	🇺🇸

EV / CY 2021A EBITDA — 32.2x Average

AMPL	4180	BIGC	BRZE	BCOV	CVO	DV	HUBS	IAS	KLTR	LPSN	RAMP	MNTV	NOGN	ONTF	XM	QUOT	SEMR	SHOP	CXM	SPT	SQSP	TWLO	YEXT	ZEN	ZETA	ZI
NM	NA	NM	NM	12.1x	NM	42.0x	NM	13.2x	NM	36.4x	19.0x	22.9x	44.2x	19.7x	NM	6.1x	NM	37.5x	NM	NM	28.1x	40.3x	NM	73.6x	30.2x	57.0x

EV / CY 2022E EBITDA — 31.5x Average

AMPL	4180	BIGC	BRZE	BCOV	CVO	DV	HUBS	IAS	KLTR	LPSN	RAMP	MNTV	NOGN	ONTF	XM	QUOT	SEMR	SHOP	CXM	SPT	SQSP	TWLO	YEXT	ZEN	ZETA	ZI
NM	NA	NM	NM	14.6x	NM	33.3x	64.9x	11.2x	NM	NM	21.0x	17.5x	NA	NM	NM	14.5x	NM	NM	NM	NM	25.5x	57.5x	NM	56.0x	22.1x	40.1x

EV / CY 2023E EBITDA — 26.1x Average

AMPL	4180	BIGC	BRZE	BCOV	CVO	DV	HUBS	IAS	KLTR	LPSN	RAMP	MNTV	NOGN	ONTF	XM	QUOT	SEMR	SHOP	CXM	SPT	SQSP	TWLO	YEXT	ZEN	ZETA	ZI
NM	NA	NM	NM	12.1x	NM	26.4x	49.3x	9.4x	NM	15.5x	13.6x	11.3x	NA	NM	48.3x	4.5x	NM	NM	71.7x	NM	21.8x	26.4x	22.3x	39.7x	16.9x	29.1x

LUMA.M – Revenue

Company:	AMPL	4180	BIGC	BRZE	BCOV	CVO	DV	HUBS	IAS	KLTR	LPSN	RAMP	MNTV	NOGN	ONTF	XM	QUOT	SEMR	SHOP	CXM	SPT	SQSP	TWLO	YEXT	ZEN	ZETA	ZI
CY 2021A Revenue ($ in millions) — Average **$687**	$167	$109	$220	$238	$211	$86	$333	$1,301	$324	$165	$470	$529	$444	$101	$204	$1,076	$521	$188	$4,612	$492	$188	$784	$2,842	$391	$1,339	$458	$747
CY 2022E Revenue ($ in millions) — Average **$870**	$235	$131	$280	$349	$214	$111	$449	$1,693	$400	$170	$516	$592	$482	NA	$193	$1,425	$301	$252	$5,491	$618	$254	$862	$3,864	$401	$1,683	$563	$1,085
CY 2023E Revenue ($ in millions) — Average **$1,020**	$308	$170	$338	$463	$223	$138	$560	$2,100	$470	$184	$569	$671	$533	NA	$202	$1,707	$336	$313	$6,774	$747	$331	$967	$4,921	$430	$2,013	$667	$1,416
'22E Growth % YoY	40%	20%	27%	47%	1%	29%	35%	30%	24%	3%	10%	12%	9%		(5%)	32%	(42%)	34%	19%	25%	35%	10%	36%	3%	26%	23%	45%
'23E Growth % YoY	31%	30%	21%	33%	5%	24%	25%	24%	17%	9%	10%	13%	10%		5%	20%	11%	24%	23%	21%	31%	12%	27%	7%	20%	18%	31%
'21A - '23E CAGR %	36%	25%	24%	40%	3%	26%	30%	27%	21%	6%	10%	13%	10%		(1%)	26%	(20%)	29%	21%	23%	33%	11%	32%	5%	23%	21%	38%

Source: FactSet (market data as of 9/30/2022), Company Filings. See Appendices A and B for company-specific details and methodologies.

LUMA.M – EBITDA Margin

Company:	AMPL (Amplitude)	4180 (Appier)	BIGC (BigCommerce)	BRZE (braze)	BCOV (BRIGHTCOVE)	CVO (Coveo)	DV (DoubleVerify)	HUBS (HubSpot)	IAS (Integral Ad Science)	KLTR (Kaltura)	LPSN (LivePerson)	RAMP (LiveRamp)	MNTV (momentive)	NOGN (nogin)	ONTF (ON24)	XM (qualtrics)	QUOT (Quotient)	SEMR (SEMRUSH)	SHOP (shopify)	CXM (sprinklr)	SPT (sprout social)	SQSP (SQUARESPACE)	TWLO (twilio)	YEXT	ZEN (zendesk)	ZETA	ZI (zoominfo)
Country:	US	Japan	US	US	US	Canada	US	US	US	US	US	US	US	US	US	US	US	US/Russia	Canada	US	US	US	US	US	US	US	US

CY 2021A EBITDA Margin — Average: 6.6%

AMPL	4180	BIGC	BRZE	BCOV	CVO	DV	HUBS	IAS	KLTR	LPSN	RAMP	MNTV	NOGN	ONTF	XM	QUOT	SEMR	SHOP	CXM	SPT	SQSP	TWLO	YEXT	ZEN	ZETA	ZI
(7.9%)	NA	(9.1%)	(12.8%)	11.5%	(25.6%)	33.0%	12.5%	31.9%	(7.4%)	6.2%	9.0%	9.3%	2.5%	3.3%	5.9%	7.8%	2.0%	16.6%	(8.2%)	(1.1%)	16.0%	9.2%	0.1%	10.3%	13.8%	42.7%

CY 2022E EBITDA Margin — Average: 3.4%

AMPL	4180	BIGC	BRZE	BCOV	CVO	DV	HUBS	IAS	KLTR	LPSN	RAMP	MNTV	NOGN	ONTF	XM	QUOT	SEMR	SHOP	CXM	SPT	SQSP	TWLO	YEXT	ZEN	ZETA	ZI
(14.9%)	NA	(17.0%)	(21.2%)	9.4%	(22.7%)	30.8%	12.0%	30.6%	(17.7%)	0.5%	7.3%	11.2%	NA	(11.9%)	5.6%	5.6%	(10.6%)	(1.7%)	(0.9%)	(0.3%)	16.0%	4.7%	1.7%	10.8%	15.3%	41.8%

CY 2023E EBITDA Margin — Average: 7.7%

AMPL	4180	BIGC	BRZE	BCOV	CVO	DV	HUBS	IAS	KLTR	LPSN	RAMP	MNTV	NOGN	ONTF	XM	QUOT	SEMR	SHOP	CXM	SPT	SQSP	TWLO	YEXT	ZEN	ZETA	ZI
(13.2%)	NA	(8.8%)	(11.2%)	10.8%	(15.0%)	31.2%	12.7%	31.1%	(5.4%)	12.0%	9.9%	15.7%	NA	(7.4%)	7.6%	16.4%	(6.3%)	1.6%	3.9%	2.2%	16.7%	8.1%	5.7%	12.7%	17.0%	44.2%

Change (bps)

	AMPL	4180	BIGC	BRZE	BCOV	CVO	DV	HUBS	IAS	KLTR	LPSN	RAMP	MNTV	NOGN	ONTF	XM	QUOT	SEMR	SHOP	CXM	SPT	SQSP	TWLO	YEXT	ZEN	ZETA	ZI
'21A Change (bps)	NA	NA	697	NA	107	NA	297	(17)	NA	NA	(414)	321	(279)	(1438)	653	(253)	602	(3)	(816)	1250	(283)	(134)	331	(74)	NA	(657)	
'22E Change (bps)	(696)	NA	(791)	(840)	(206)	291	(217)	(52)	(133)	(1026)	(567)	(172)	190		(1513)	(34)	(217)	(1261)	(1822)	725	79	4	(445)	166	47	153	(96)
'23E Change (bps)	162	NA	825	998	144	769	37	73	50	1228	1150	261	446		448	203	1078	431	329	486	250	71	336	397	192	162	240

LUMA.M – Summary Financial Statistics

Company	Ticker	Revenue			Revenue Growth			EBITDA			EBITDA Margin %		
		CY2021	CY2022	CY2023	CY2021	CY2022	CY2023	CY2021	CY2022	CY2023	CY2021	CY2022	CY2023
Amplitude	AMPL	$167	$235	$308	63.2%	40.5%	30.9%	($13)	($35)	($41)	(7.9%)	(14.9%)	(13.2%)
Appier	4180	$109	$131	$170	30.4%	19.7%	29.6%	-	-	-	NA	NA	NA
BigCommerce	BIGC	$220	$280	$338	44.3%	27.3%	20.8%	($20)	($48)	($30)	(9.1%)	(17.0%)	(8.8%)
Braze	BRZE	$238	$349	$463	58.5%	46.7%	32.7%	($31)	($74)	($52)	(12.8%)	(21.2%)	(11.2%)
Brightcove	BCOV	$211	$214	$223	7.0%	1.2%	4.7%	$24	$20	$24	11.5%	9.4%	10.8%
Coveo	CVO	$86	$111	$138	33.4%	28.6%	24.3%	($22)	($25)	($21)	(25.6%)	(22.7%)	(15.0%)
Double Verify	DV	$333	$449	$560	36.4%	35.0%	24.6%	$110	$138	$174	33.0%	30.8%	31.2%
Hubspot	HUBS	$1,301	$1,693	$2,100	47.3%	30.2%	24.0%	$163	$203	$267	12.5%	12.0%	12.7%
Integral Ad Science	IAS	$324	$400	$470	34.4%	23.8%	17.3%	$103	$123	$146	31.9%	30.6%	31.1%
Kaltura	KLTR	$165	$170	$184	37.0%	2.9%	8.6%	($12)	($30)	($10)	(7.4%)	(17.7%)	(5.4%)
LivePerson	LPSN	$470	$516	$571	28.1%	9.9%	10.8%	$29	$3	$68	6.2%	0.5%	11.9%
LiveRamp	RAMP	$529	$592	$671	19.3%	11.9%	13.4%	$47	$43	$66	9.0%	7.3%	9.9%
Momentive	MNTV	$444	$482	$533	18.2%	8.7%	10.4%	$41	$54	$83	9.3%	11.2%	15.7%
Nogin	NOGN	$101	NA	NA	122.7%	NA	NA	$3	NA	NA	2.5%	NA	NA
ON24	ONTF	$204	$193	$202	29.7%	(5.4%)	4.6%	$7	($23)	($15)	3.3%	(11.9%)	(7.4%)
Qualtrics	XM	$1,076	$1,425	$1,704	40.9%	32.4%	19.7%	$64	$80	$130	5.9%	5.6%	7.6%
Quotient	QUOT	$521	$301	$336	17.0%	(42.2%)	11.5%	$41	$17	$55	7.8%	5.6%	16.4%
SEMrush	SEMR	$188	$252	$313	50.5%	34.0%	24.3%	$4	($27)	($20)	2.0%	(10.6%)	(6.3%)
Shopify	SHOP	$4,612	$5,489	$6,769	57.4%	19.0%	23.3%	$764	($91)	$111	16.6%	(1.7%)	1.6%
Sprinklr	CXM	$492	$618	$747	27.3%	25.4%	21.0%	($40)	($6)	$30	(8.2%)	(0.9%)	3.9%
SproutSocial	SPT	$188	$254	$331	41.3%	35.2%	30.5%	($2)	($1)	$7	(1.1%)	(0.3%)	2.2%
Squarespace	SQSP	$784	$862	$967	26.2%	9.9%	12.2%	$125	$138	$161	16.0%	16.0%	16.7%
Twilio	TWLO	$2,842	$3,864	$4,921	61.3%	36.0%	27.4%	$261	$183	$398	9.2%	4.7%	8.1%
Yext	YEXT	$391	$401	$430	10.1%	2.6%	7.3%	$0	$7	$25	0.1%	1.7%	5.7%
Zendesk	ZEN	$1,339	$1,674	$1,971	30.0%	25.0%	17.8%	$138	$182	$256	10.3%	10.9%	13.0%
Zeta	ZETA	$458	$563	$667	24.5%	22.9%	18.4%	$63	$86	$113	13.8%	15.3%	17.0%
ZoomInfo	ZI	$747	$1,085	$1,416	56.9%	45.2%	30.5%	$319	$453	$625	42.7%	41.8%	44.2%
Average					39.0%	20.2%	19.2%				6.6%	3.4%	7.7%
Median					34.4%	24.4%	20.2%				7.0%	4.7%	8.1%
25th Percentile					26.7%	9.9%	11.6%				(0.8%)	(10.6%)	(5.4%)
75th Percentile					48.9%	33.6%	24.5%				12.2%	11.2%	15.7%

LUMA.M – Summary Financial Statistics

Company	Ticker	R&D Expense % of Revenue			G&A Expense % of Revenue			S&M Expense % of Revenue		
		CY2021A	CY2022E	CY2023E	CY2021A	CY2022E	CY2023E	CY2021A	CY2022E	CY2023E
Amplitude	AMPL	19.0%	22.0%	21.1%	15.3%	15.5%	14.6%	45.6%	50.6%	47.8%
Appier	4180	NA	11.8%	12.2%	NA	7.6%	7.0%	NA	32.5%	31.7%
BigCommerce	BIGC	26.6%	27.8%	26.0%	21.3%	21.8%	19.6%	41.4%	44.8%	41.9%
Braze	BRZE	18.3%	19.7%	19.0%	16.3%	19.0%	16.4%	46.7%	51.3%	45.5%
Brightcove	BCOV	14.6%	14.8%	14.6%	12.8%	13.9%	12.5%	32.6%	33.7%	34.3%
Coveo	CVO	29.9%	29.3%	27.6%	36.3%	21.5%	19.2%	51.9%	49.9%	47.2%
Double Verify	DV	17.5%	18.1%	17.6%	18.5%	15.2%	13.5%	21.3%	21.2%	20.7%
Hubspot	HUBS	18.3%	20.0%	19.7%	8.9%	8.8%	8.7%	44.6%	44.9%	44.8%
Integral Ad Science	IAS	19.0%	16.9%	17.0%	19.6%	16.0%	15.2%	24.4%	23.4%	22.4%
Kaltura	KLTR	27.6%	31.5%	27.7%	17.5%	18.0%	15.9%	26.2%	34.6%	30.6%
LivePerson	LPSN	33.7%	32.6%	28.4%	16.3%	14.5%	13.5%	35.2%	38.4%	33.8%
LiveRamp	RAMP	23.8%	25.4%	24.5%	15.5%	15.6%	15.3%	29.2%	30.7%	29.1%
Momentive	MNTV	21.9%	21.1%	19.9%	15.5%	14.8%	13.6%	43.9%	41.4%	38.3%
Nogin	NOGN	5.3%	NA	NA	56.5%	NA	NA	1.8%	NA	NA
ON24	ONTF	14.9%	18.4%	17.2%	15.1%	16.9%	16.0%	46.8%	52.4%	48.6%
Qualtrics	XM	18.2%	19.2%	18.9%	10.0%	9.3%	9.0%	46.6%	46.6%	46.3%
Quotient	QUOT	7.8%	8.5%	7.6%	8.2%	16.8%	13.1%	19.7%	24.3%	22.0%
SEMrush	SEMR	12.8%	16.4%	15.8%	22.0%	23.8%	22.9%	42.9%	48.6%	46.2%
Shopify	SHOP	13.1%	18.8%	18.0%	7.3%	9.7%	9.1%	18.5%	24.6%	23.0%
Sprinklr	CXM	11.0%	10.8%	11.6%	13.1%	12.3%	11.5%	54.6%	51.1%	48.4%
SproutSocial	SPT	19.2%	20.5%	20.0%	20.7%	20.3%	18.6%	39.1%	39.7%	39.0%
Squarespace	SQSP	20.1%	23.2%	23.8%	12.8%	11.6%	11.1%	42.6%	35.2%	33.4%
Twilio	TWLO	17.8%	18.1%	17.4%	9.9%	9.8%	9.1%	25.7%	25.4%	24.0%
Yext	YEXT	12.2%	14.3%	13.2%	16.4%	16.1%	15.6%	52.2%	49.3%	45.1%
Zendesk	ZEN	20.6%	21.1%	20.7%	10.7%	10.5%	10.2%	42.8%	42.6%	42.5%
Zeta	ZETA	8.2%	7.7%	7.7%	18.9%	17.5%	16.8%	21.7%	24.6%	23.7%
ZoomInfo	ZI	12.0%	12.8%	12.2%	9.7%	9.0%	9.0%	26.3%	28.1%	27.6%
Average		17.8%	19.3%	18.4%	17.1%	14.8%	13.7%	35.6%	38.1%	36.1%
Median		18.2%	19.0%	18.4%	15.5%	15.4%	13.5%	40.3%	39.1%	36.3%
25th Percentile		12.8%	15.2%	14.9%	11.2%	10.8%	10.5%	25.8%	28.8%	28.0%
75th Percentile		20.5%	21.8%	21.0%	18.8%	17.3%	16.0%	45.4%	48.1%	45.4%

Table of Contents

Ad Tech
MarTech
Digital Content

Announcement Date	Company	Selected / Key Investor(s)	Capital Raised in Transaction	Valuation	Commentary
9/29/2022	LUNIO	SMEDVIG CAPITAL	$15	ND	▪ Lunio, an ad marketplace traffic verification platform, has raised $15mm in a Series A round led by Smedvig. ▪ Lunio plans to expand to 55 FTEs, up from 43, to accelerate go-to-market efforts in Europe & North America.
9/19/2022	Swiftly	BRV CAPITAL MANAGEMENT	$100	$1,150	▪ Swiftly, a retail media & analytics platform, has raised a $100mm Series C round led by BRV Capital. ▪ Swiftly has now achieved a unicorn valuation, and has raised $210mm to date.
9/13/2022	OvationCXM	T VENTURES	$20	ND	▪ OvationCXM (f.k.a Boomtown), a CXM platform has raised $20mm in a hybrid round led by Telstra Ventures. ▪ The new funds will support tech headcount expansion to broaden the capabilities of its CXMEngine.
9/9/2022	TigerEye	initialized() Next47	$35	$180	▪ TigerEye, a sales enablement platform, has raised $35mm in a Series A round co-led by Initialized & Next47. ▪ The company, currently stealth, was founded by the team behind PlanGrid, which was acquired for $875mm.
9/7/2022	REGAL	EMERGENCE	$39	$350	▪ Regal, a phone and SMS sales platform, has raised a $38.5mm Series A round led by Emergence Capital. ▪ Regal has 80+ FTEs serving 100+ customers; and have reportedly grown revenue 34% MoM since launch.
9/6/2022	ZineOne	SignalFire	$28	$114	▪ ZineOne, an in-session marketing (ISM) platform, has raised a $28mm Series C round led by SignalFire. ▪ The new funds will support plans to secure ZineOne's incumbent position in the ISM niche.
9/1/2022	OneSignal	B.A.M.	$50	ND	▪ OneSignal, a customer engagement platform, has raised a $50mm Series C round, led by BAM Elevate. ▪ The new funds will support product development and deepen its footprint in Europe, Asia & Latin America.
8/30/2022	Tarci	SOUND)))	$17	ND	▪ Tarci (f.k.a Leadgence), an AI-powered sales enablement platform, has raised a $17mm Series A round. ▪ Tarci was founded in 2019, and the platform is centered around SMB sales leads.
8/24/2022	DRIVEN IQ	CAPSTONE Technologies LLC	$15	$75	▪ DrivenIQ an audience intelligence platform, has raised $15mm in a Series A round led by Capstone Tech. ▪ DrivenIQ focuses on the automotive and retail industries, and reportedly grew revenue 112% in H1 2022.
8/24/2022	Lily ai	SORENSON VENTURES Canaan NEA	$25	$160	▪ Lily, an AI-powered customer intent platform for eCommerce, has raised $25mm in a Series B round. ▪ Lily began in fashion retail, but this year expanded to home and beauty, as well as internationally to the UK & EU.
8/23/2022	SmartMoving	Mainsail Partners	$42	ND	▪ SmartMoving, a CRM platform for the moving services industry has received a $42mm investment from Mainsail. ▪ The company plans to use the new funds to enhance its cloud-first technology & become an incumbent player.
8/22/2022	WeGift	Undisclosed Investors	$16	$86	▪ WeGift, a digital incentive marketing platform has closed a $16mm Series A round. ▪ The new funds will be used to build out supply chain infrastructure through direct integrations and other R&D.

Source: Pitchbook, Company Announcements, Businesswire, GeekWire, PRNewswire, TechCrunch, and WSJ.
Note: All figures in USD millions unless noted otherwise.

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Announcement Date	Company	Selected / Key Investor(s)	Capital Raised in Transaction	Valuation	Commentary
8/17/2022	vidmob	SHAMROCK CAPITAL	$110	$560	■ VidMob, an AI-powered creative platform, has raised a $110mm Series D round led by Shamrock Capital. ■ VidMob has 350 FTEs globally, and plans to use the funds to enhance existing offerings across the platform.
8/16/2022	Northbeam	SILVERSMITH	$15	$75	■ Northbeam, a ML-powered 1P eCommerce intelligence platform, has raised $15mm in a Series A round. ■ Northbeam reportedly tracks 1P data associated with $4.4bn in revenue and $1.2bn in ad spend annually.
8/15/2022	gorgias	TRANSPOSE PLATFORM / shopify	$30	$710	■ Gorgias, a multi-channel eCommerce CXM platform, has raised $30mm in a Series C round. ■ Gorgias reportedly has 10k merchants on its platform, and plans to use the new funds to improve its suite.
8/12/2022	fullstory	PERMIRA	$25	$1,700	■ FullStory, an analytics platform for apps and web, has secured $25mm in new equity financing from Permira. ■ FullStory doubled its headcount in 2021 to 500+FTEs, with offices in the US, Europe & APAC.
8/11/2022	CleverTap	CDPQ	$105	ND	■ CleverTap, a B2B customer engagement platform, has raised $105mm in a Series D round led by CDPQ. ■ CleverTap recently acquired Leanplum, a competitor, to strengthen its footprint in North America & Europe.
8/2/2022	klaviyo	shopify	$100	ND	■ Klaviyo, an eCommerce email & SMS marketing platform has received a $100mm investment from Shopify. ■ Klaviyo has 1,000 FTEs, raised $775mm to date, and was valued at $9.5bn as of May 2021.
7/27/2022	SEEDTAG	Advent International GLOBAL PRIVATE EQUITY	$252	ND	■ SeedTag, an AI-powered contextual intelligence platform, has received a $252mm investment from Advent. ■ The Spain-based company will reportedly use the new funds to support its North America expansion.
7/26/2022	sovrn	FOUNDRY GROUP	$36	$276	■ Sovrn, a publisher management & monetization tool, has raised $36mm Series C round led by Foundry. ■ The funding allows Sovrn to pursue additional acquisitions and support product development efforts.
7/26/2022	cordial	NEWSPRING	$50	$300	■ Cordial, a DMP and customer engagement platform, has raised a $50mm Series C round led by NewSpring. ■ The new funds will support product development and a partnership-focused go-to-market approach.
7/21/2022	Contentsquare	SIXTH STREET	$600	$5,600	■ ContentSquare, a customer journey analytics platform, has received a $600mm Series F from Sixth Street. ■ The funding will scale investments in innovation both organically and through M&A.
7/20/2022	charles	salesforce ventures	$20	ND	■ Charles, a conversational commerce platform, has raised a $20mm Series A round led by Salesforce Ventures. ■ The new funds will support efforts to grow market share in Europe.
7/19/2022	Flip	WESTCAP	$60	$500	■ Flip, a social shopping platform for mobile, has raised a $60mm Series B round led by WestCap. ■ Flip grew its user base 500% YTD, and will use the new funds on headcount expansion and new partnerships.

Source: Pitchbook, Company Announcements, Businesswire, Finsmes, PRNewswire, and TechCrunch.
Note: All figures in USD millions unless noted otherwise.

Announcement Date	Company	Selected / Key Investor(s)	Capital Raised in Transaction	Valuation	Commentary
7/14/2022	AssemblyAI	INSIGHT PARTNERS	$30	$185	▪ Assembly AI, an audio intelligence API provider, has raised a $30mm Series B round led by Insight Partners. ▪ The funds will be used to build out its AI infrastructure and grow AI research team headcount to accelerate R&D.
7/13/2022	Kontent.ai	expedition GROWTH CAPITAL	$40	ND	▪ Kontent.ai (f.k.a Kentico), a headless CMS, has raised $40mm in growth capital from Expedition Capital Growth. ▪ The new funds will support the growth of 4 offices, the opening of 2 new offices, and 90+ new FTEs throughout.
7/5/2022	voyantis	**Several Investors**	$19	ND	▪ Voyantis a codeless AI-powered customer retention forecasting platform, has raised $19mm. ▪ The platform predicts new customers' lifetime value to optimize LTV/CAC outcomes.
7/1/2022	retailrocket	Flintera	$24	ND	▪ Retail Rocket, an AI-powered retention management platform, has raised $24mm in a round led by Flintera. ▪ Retail rocket simultaneously announced the acquisition of SailPlay, a B2C CRM platform.

Source: Pitchbook, Company Announcements, Businesswire, Finsmes, PRNewswire, and TechCrunch.
Note: All figures in USD millions unless noted otherwise.

| Ad Tech |
| MarTech |
| **Digital Content** |
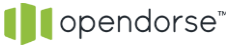
Announcement Date	Company	Selected / Key Investor(s)	Capital Raised in Transaction	Valuation	Commentary
9/29/2022	TRILLER	gem global emerging markets	$310	ND	■ Triller, a social video-sharing platform, has raised $310mm from Global Emerging Markets. ■ Triller was founded in 2019, reportedly has 350mm+ downloads, will reach $100mm in revenue this year.
9/27/2022	AMAZEVR THE NEXT STAGE OF MUSIC	GAC CJ E&M	$32	ND	■ AmazeVR, a metaverse concert platform, has raised $32mm in its Series B round. ■ The platform rose to prominence during the pandemic, and reportedly sold out all of its shows during Q3 2022.
9/22/2022	THEORYCRAFT	MAKERS FUND	$50	ND	■ TheoryCraft, a game studio, has raised $50mm in a series B round led by Makers Fund. ■ The company is active in the development of its first title - Codename Loki.
9/16/2022	PARLER	**Undisclosed Investors**	$20	ND	■ Parler, a social media platform centered around free speech, has raised $20mm in new funding. ■ The company claims to have 16mm+ registered users.
9/16/2022	LOOTMOGUL	gem global emerging markets	$200	ND	■ LootMogul, an athlete-led sports metaverse platform, has raised $200mm from Global Emerging Markets. ■ The platform includes metaverse real estate, celebrity NFT projects, and web3 games.
9/9/2022	animoca BRANDS	GGV 博裕資本 BOYU CAPITAL TEMASEK	$110	$6,010	■ Blockchain gaming developer, Animoca Brands, has closed a funding round led by Temasek, GGV and Boyu. ■ The funding round will go to fund strategic acquisitions, investments, and product developments prior to an IPO.
9/7/2022	Netspeak Games	LAKE STAR	$12	$32	■ Netspeak Games, a mobile games studio, has raised a $12mm Series A led by Lakestar. ■ The funding will support the development of its first mobile game, a social title called Sunshine Days.
9/6/2022	UBISOFT	Tencent 腾讯	$297	$10,000	■ Tencent has made a $297mm investment into Ubisoft, making it the largest shareholder at an 11% stake. ■ The past 4 years Ubisoft has been plagued by game delays and shares have dropped 54%.
9/2/2022	Jot Art	ACP PARTNERS	$60	ND	■ The Jot Art Metaverse Project has raised $35mm via a grant from KaJ Labs, and $25mm in funding from ACP. ■ The cross-chain metaverse gaming platform features high-adventure gameplay with mixed RPG elements.
8/31/2022	oVice	**Undisclosed Investors**	$32	ND	■ OVice, a Japan-based virtual office platform, has raised ~$32.5mm in a Series B round. ■ OVice was launched in 2020, and offers customizable virtual spaces for offices, classrooms and event venues.
8/31/2022	SEAT GEEK	Accel	$238	$1,240	■ SeatGeek, a live-event ticket platform, has raised $238mm as part of a Series E round led by Accel. ■ The new funds will support development of its enterprise ticket software and event-day experience platform.
8/30/2022	(Proof)	andreessen horowitz	$50	ND	■ Proof, a Web3 social platform, has raised a $50mm Series A round, led by Andreesen Horowitz. ■ The company is reportedly moving away from the creator economy and more towards blockchain infrastructure.

Source: Pitchbook, Company Announcements, Axios, Entrepreneur India, Globenewswire, PRNewswire, Reuters, SportsMedia, and TechCrunch.
Note: All figures in USD millions unless noted otherwise.

Announcement Date	Company	Selected / Key Investor(s)	Capital Raised in Transaction	Valuation	Commentary
8/30/2022	xterio	FUNPLUS / FTX Ventures	$40	ND	▪ Xterio, a cross-platform publisher and developer of mobile & web3 games, has raised $40mm. ▪ The new funds will be used to develop and publish the studio's own games and that of its partners.
8/29/2022	LIMIT BREAK	BUCKLEY / STANDARD CRYPTO	$200	$1,750	▪ Limit Break, a platform for so-called 'Free Mint Games', has raised $200mm from Buckley and Standard Crypto. ▪ The company was founded by Gabe Leydon, who also founded Machine Zone, which was acquired by AppLovin.
8/23/2022	PINPIN TEAM	AZUR GAMES	ND	ND	▪ PinPin Team, a mobile games studio, has received a 30% investment from Azur, a publisher & developer. ▪ PinPin intends to use the new partnership to grow its platform and better monetize by self-publishing.
8/23/2022	SOMETHING WICKED GAMES	NetEase Games	$13	$63	▪ Something Wicked, a AAA game studio, has received a $13.2mm investment from NetEase. ▪ SW was founded by the former lead producer of Fallout, and his team of former colleagues at Bethesda Games.
8/16/2022	MODULATE	LAKE STAR	$30	$170	▪ Modulate, a proactive voice moderation platform, has raised a $30mm Series A round led by Lakestar. ▪ The new funds will support continued headcount expansion and further development of its ToxMod product.
8/15/2022	songfinch	**Undisclosed Investors**	$17	ND	▪ Songfinch, a creator economy marketplace for personalized songs, has raised $17mm in new venture funding. ▪ Songfinch earlier reported $5mm+ in payouts for 100k+ songs created by the 1200+ musicians on the platform
8/8/2022	betr	alia Capital Partners	$50	$115	▪ Betr, Jake Paul's sports micro-betting and media company has raised $50mm in a Series A round led by Alia. ▪ The funds will be used to build out media infrastructure, and support customer acquisition for the Betr app.
8/5/2022	INK GAMES	**Undisclosed Investors**	$19	ND	▪ INK Games, a mobile social gaming and commerce platform, has raised $19mm in a Series B round. ▪ The new funds will be used to build out the platform, and develop its Prize Kingdoms mobile game.
8/4/2022	FLIPBOARD	**Undisclosed Investors**	$25	ND	▪ Flipboard, a social and news aggregator app, has raised $25mm. ▪ Flipboard was founded in 2010, and reportedly had 100mm MAUs as of EoY 2021.
8/2/2022	OVERTIME	LIBERTY / COUNTERPOINT GLOBAL	$100	$600	▪ Overtime, a sports content publisher, has raised $100mm at a $600mm post-valuation in a Series D round. ▪ Overtime has 200+ FTEs, 55mm+ followers across 7 platforms, and generates 1.5bn+ views per month.
7/28/2022	opendorse™	INVEST NEBRASKA	$15	ND	▪ Opendorse, an open endorsement and marketing platform for athletes, has raised $15mm. ▪ Opendorse is the exclusive name-image-likeness partner of 500+ NJCAA schools.
7/27/2022	UNDERDOG FANTASY	BlackRock / ACIES INVESTMENTS	$35	$485	▪ Underdog, a paid fantasy sports platform, has raised $35mm in a Series B round led by Blackrock and Acies. ▪ Underdog recently launched the largest season-long fantasy prize pool ever at $10mm.

Source: Pitchbook, Company Announcements, Axios, Forbes, GlobeNewsWire, Intelligence360, PocketGamer, PRWeb, and VentureBeat
Note: All figures in USD millions unless noted otherwise.

Announcement Date	Company	Selected / Key Investor(s)	Capital Raised in Transaction	Valuation	Commentary
7/26/2022	MIGHTY BEAR	Framework	$10	ND	■ Mighty Bear Games, a developer of web3 games, has raised $10mm in a round led by Framework Ventures. ■ The new funds will support the development of Mighty Action Heroes, a web3 game.
7/21/2022	GAMEPLAY GALAXY	BLOCKCHAIN CAPITAL	$13	$48	■ Gameplay Galaxy, a blockchain gaming platform, has raised $13mm in a Seed Round led by Blockchain Capital. ■ The funds will build out more features for the platform, including new games and wallet functionality.
7/19/2022	XSET	LIGHTWORK WORLDWIDE	$15	ND	■ XSET, a gaming and lifestyle brand, has raised $15mm in a Series A round led by LightWork Worldwide. ■ The new funds will be invested in executive talent, marketing and content creation.
7/14/2022	YOU.com	RADICAL VENTURES	$25	$215	■ You, a search engine, has raised $25mm in a Series A round led by Radical Ventures. ■ The company reported 70% user growth in the past month, and 30% growth in unique searches MoM.
7/14/2022	Podimo	SABAN 83NORTH	$58	ND	■ Podimo, a Denmark-based podcast streaming platform, has raised $58mm in a venture funding round. ■ The new funds will go towards content, product development and market expansion in North America.
7/11/2022	EDGE esports	CORNER VENTURES	$30	ND	■ Edge, the developer of an AI-powered eSports gaming software, has raised $30mm in a Series A round. ■ The funds will support the development of its game content platform, Playables.
7/8/2022	whatnot	CapitalG DST	$260	$4,160	■ Whatnot, a live shopping platform, has raised $260mm in a Series D round led by DST Global & CapitalG. ■ The latest fundraise brings the pre-money valuation to $3.7bn, a 2.5x increase over the last round.
7/5/2022	SOMETHING RANDOM	NetEase Games	ND	ND	■ Something Random, a VR game studio, has received a seed investment from NetEase. ■ The company was founded in 2022 by the team behind SUPERHOT, a VR shooter title.
7/1/2022	FATHOM	Undisclosed Investors	ND	ND	■ Fathom, an AI-powered podcast discovery platform, has raised $15mm in venture funding. ■ Fathom's AI-based application is designed to reimagine the podcast search and discovery experience.

Source: Pitchbook, Company Announcements, GamesIndustry, TechCrunch, and VentureBeat.
Note: All figures in USD millions unless noted otherwise.

Table of Contents

		Reported Revenue
		Gross Profit
		Revenue ex-TAC
		Gross Profit ex-TAC
		Other

Company	Ticker	Net Revenue Definition / Metric Used	Selected Notes
Reported Revenue			
AppLovin	APP	Reported Revenue	*N/a*
DoubleVerify	DV	Reported Revenue	*N/a*
Innovid	CTV	Reported Revenue	*N/a*
Integral Ad Science	IAS	Reported Revenue	*N/a*
ironSource	IS	Reported Revenue	*N/a*
LiveRamp	RAMP	Reported Revenue	*N/a*
Roku	ROKU	Reported Revenue	*N/a*
Media and Games Invest	M8G	Reported Revenue	*N/a*
Mobvista	1860	Reported Revenue	*N/a*
PubMatic	PUBM	Reported Revenue	*N/a*
The Trade Desk	TTD	Reported Revenue	*N/a*
Tremor International	TRMR	Reported Revenue	*For net revenue multiples, share price contemplates ordinary share price that represent approximately half of the NASDAQ-listed ADS share price.*
Unity Software	U	Reported Revenue	*N/a*
Zeta	ZETA	Reported Revenue	*N/a*
Gross Profit			
Acuity Ads	ATY	Gross Profit	*N/a*
AdTheorent	ADTH	Gross Profit	*N/a*
Cardlytics	CDLX	Gross Profit	*N/a*
Digital Turbine	APPS	Gross Profit	*CY 2021 figures presented on an estimated pro forma basis inclusive of estimates for material acquisitions (Fyber, AdColony); consolidated consensus figures contemplated thereafter.*
MediaAlpha	MAX	Gross Profit	*N/a*
Revenue ex-TAC			
Criteo	CRTO	Revenue ex-TAC	*N/a*
Magnite	MGNI	Revenue ex-TAC	*CY 2021 figures are presented on a pro forma basis using estimates for Telaria and SpotX acquisitions. CY 2021 Pro forma figures represent Craig Hallum (as of May 3rd, 2021) forecasts, adjusted for; (i) interim reported financial performance versus prior consensus estimates (e.g., Q2/Q3 actuals versus consensus for corresponding periods), and (ii) revisions to consensus estimates of future performance.*
Perion Network	PERI	Revenue ex-TAC	*Forward projections per Oppenheimer Research as of Aug 3, 2022.*
Viant	DSP	Revenue ex-TAC	*N/a*
Gross Profit ex-TAC			
Outbrain	OB	Gross Profit ex-TAC	*Forward projections per Jefferies Research as of Aug 11, 2022.*
Taboola	TBLA	Gross Profit ex-TAC	*Forward Net Revenue projections per Oppenheimer Research as of Aug 11, 2022.*
Other			
Affle	542752	Other	*Net Revenue figures contemplate Revenue less Inventory and Data Costs per BNP Paribas Research as of Aug 10, 2022.*

Sources: FactSet (market data as of 9/30/22), Company Filings. **Note:** Figures correspond to calendar years, or closest equivalent period. Forward estimates excluded for companies whose relevant metrics are not available on a forward basis. For net revenue multiples, market cap and EV for APP, DSP, IS, MAX, PUBM, ROKU and TTD includes both class A and class B shares. EBITDA Margins are calculated on a Net Revenue basis.

Appendix B: Selected Other Public Company Notes (1 / 2)

Ad Tech Public Companies - Selected Notes

Company	Ticker	Exchange	Notes
Affle	AFFLE	NSE	Market Capitalization contemplates ordinary shares outstanding; net diluted shares outstanding could not be located in public disclosures. Figures correspond to the closest applicable quarter.
Magnite	MGNI	NASDAQ	CY 2021 figures are presented on an estimated pro forma basis inclusive of estimates for Telaria and SpotX acquisitions for all presented periods. Pro forma figures are estimated by adjusting initial pro forma forecast published by Craig Hallum (as of May 3rd, 2021) with figures derived from **(i)** interim reported financial performance versus prior consensus estimates (e.g., Q2/Q3 actuals versus consensus for corresponding periods), and **(ii)** revisions to consensus estimates of future performance. Current 2021 actuals for Magnite contemplate Craig Hallum equity research as of March 4, 2022. CY 2022 and CY 2023 figures represent consensus estimates.
Mobvista	1860	HKG	Market Capitalization contemplates ordinary shares outstanding; net diluted shares outstanding could not be located in public disclosures.
Tremor Int'l	TRMR	LSE; NASDAQ	Market Capitalization contemplates the product of (i) FDSO and (ii) Tremor's local U.K. share price denominated in GBP. Market Capitalization is converted to USD at the daily spot rate.
Digital Turbine	APPS	NASDAQ	CY 2021 figures are presented on an estimated pro forma basis contemplating figures from a compilation of publicly-available information obtained via equity research reports and company guidance at the time of deal announcements for recent material acquisitions of AdColony and Fyber. The estimates for CY 2021 are adjusted to account for **(i)** interim reported performance versus prior consensus estimates (e.g., Q2/Q3 actuals versus consensus for corresponding periods), and **(ii)** revisions to consensus estimates of future performance. Growth rates calculated relative to CY 2021 are therefore stated on a pro forma basis, fully inclusive of recent acquisitions (on an estimated basis). CY 2022 and CY 2023 figures represent consensus estimates.

Source: FactSet (market data as of 9/30/2022), Company Filings.

Appendix B: Selected Other Public Company Notes (2 / 2)

MarTech Public Companies - Selected Notes

Company	Ticker	Exchange	Notes
Appier	4180	TYO	Market Capitalization contemplates ordinary shares outstanding; inputs for net diluted shares outstanding could not be located in public disclosures.
Braze	BRZE	NASDAQ	CY figures contemplates the closest period based on an October 31st FYE.
Sprinklr	CXM	NYSE	CY figures contemplates the closest period based on a January 31st FYE.
Yext	YEXT	NYSE	CY figures contemplates the closest period based on a January 31st FYE.

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