LUMA presents our annual State of Digital Marketing, which covers our views on the market, industry trends, and the future of the ecosystem with a specific focus on digital marketing. We hope you enjoy it.

Meet the Senior LUMA Team

Terence Kawaja	Brian Andersen	Mark Greenbaum	Dick Filippini	Gayle Meyers
Founder & CEO	**Partner**	**Partner**	**Partner**	**CMO**
Terry leads strategy, banking and content for LUMA.	Brian is LUMA's marketing technology guru.	Mark runs M&A strategy and execution for LUMA.	Dick leads LUMA's mobile and gaming banking coverage.	Gayle runs LUMA's marketing, events, and partnerships.
He's also head comedy writer and performer.	*He excels at coaching both little league and big clients.*	*He's never met a term sheet he couldn't improve.*	*You can find him holding court every February in Barcelona.*	*She may be new, but she's already formidable.*

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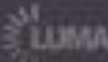# 1. Market Update

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LUMA's Singular Focus on Digital Media
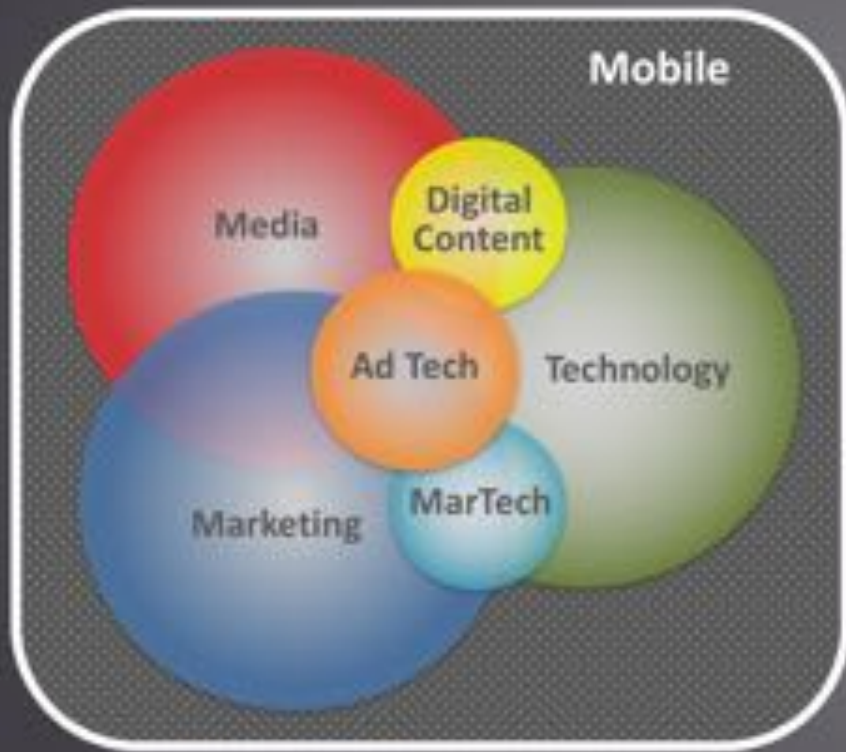
- **Digital Content:** content sites, MCNs, game publishers, aggregators

- **Ad Tech:** display, search, video, mobile, social, content marketing/native, connected TV

- **MarTech:** data, analytics, sales and marketing automation, email, predictive tools, commerce technology, shopper marketing, payments

LUMA's singular industry focus is on the intersection of Media, Marketing, and Technology; the sectors of Digital Content, Ad Tech and MarTech all seen through the lens of mobile.

# Ad Tech Continues to Struggle; MarTech Stabilizes
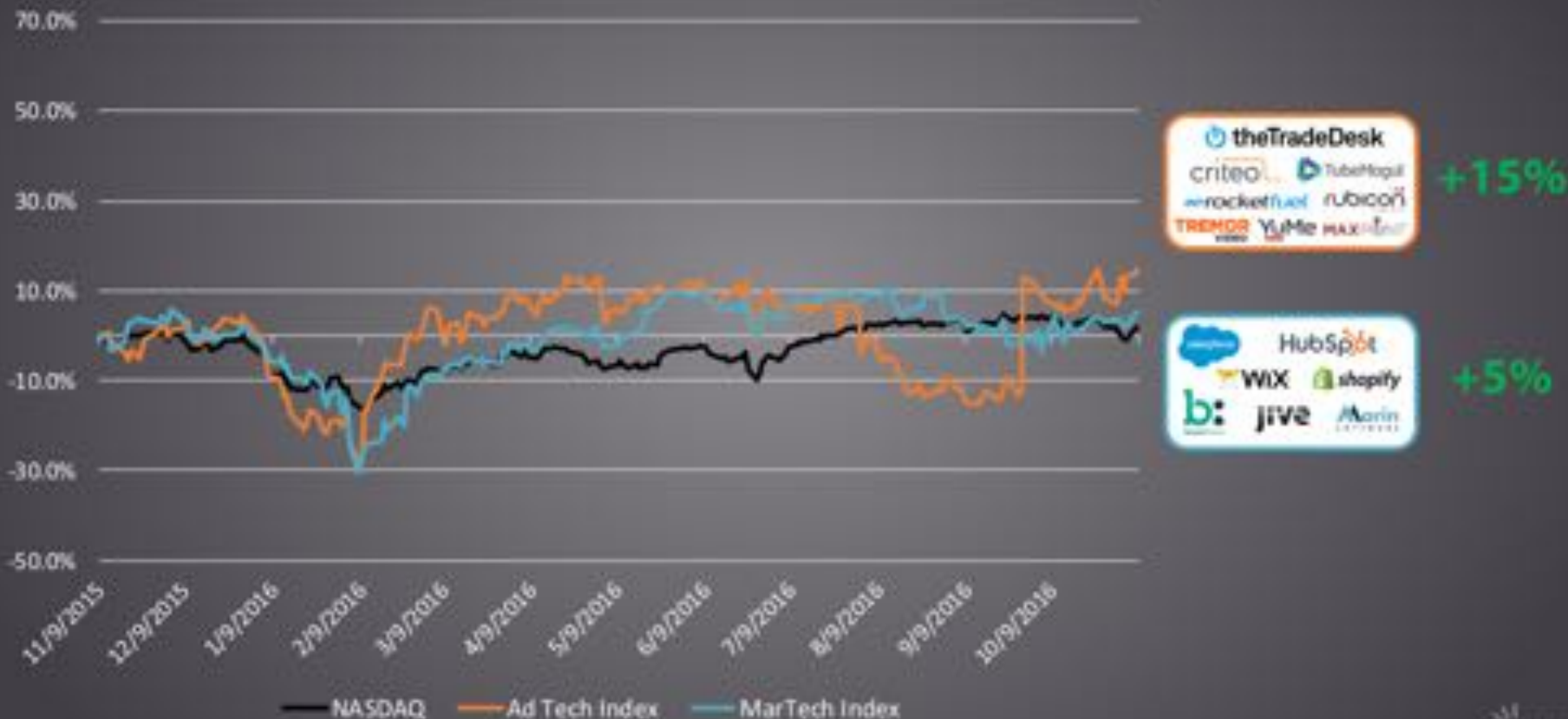
After a rocky start to the year, MarTech stock prices have stabilized. Ad Tech stocks show stronger performance when including the industry's newest entrant, The Trade Desk, which began trading publicly in September.
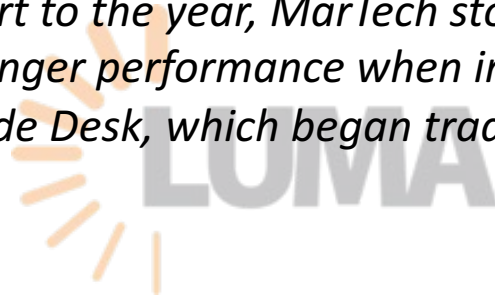
Ad Tech Continues to Struggle; MarTech Stabilizes

On an "apples-to-apples" basis, excluding this year's new entrant The Trade Desk, we see the Ad Tech sector in negative territory year-over-year.
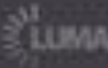
Multiples: Ad Tech Falling; MarTech Normalizing

Beyond the stock prices, when we divide by revenue and look at multiples over the same period, we note stable stock prices but growing revenues yield declining multiples for MarTech.

Including The Trade Desk, which is currently trading well above its peers, multiples in Ad Tech appear unchanged.

Multiples: Ad Tech Falling; MarTech Normalizing

Δ Revenue (LTM): +32%

-14%

-45%

Δ Revenue (LTM): +25%

— Ad Tech Index — MarTech Index

Excluding The Trade Desk, Ad Tech multiples are down almost 50% while revenues continue to grow meaningfully for both Ad Tech and MarTech.

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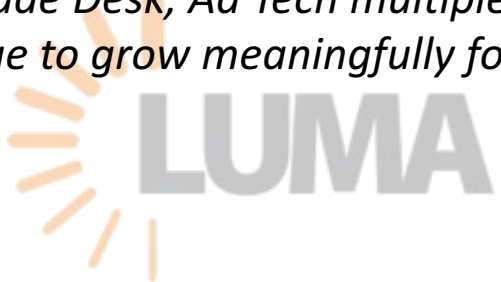
Revenue Multiples Follow Revenue Growth
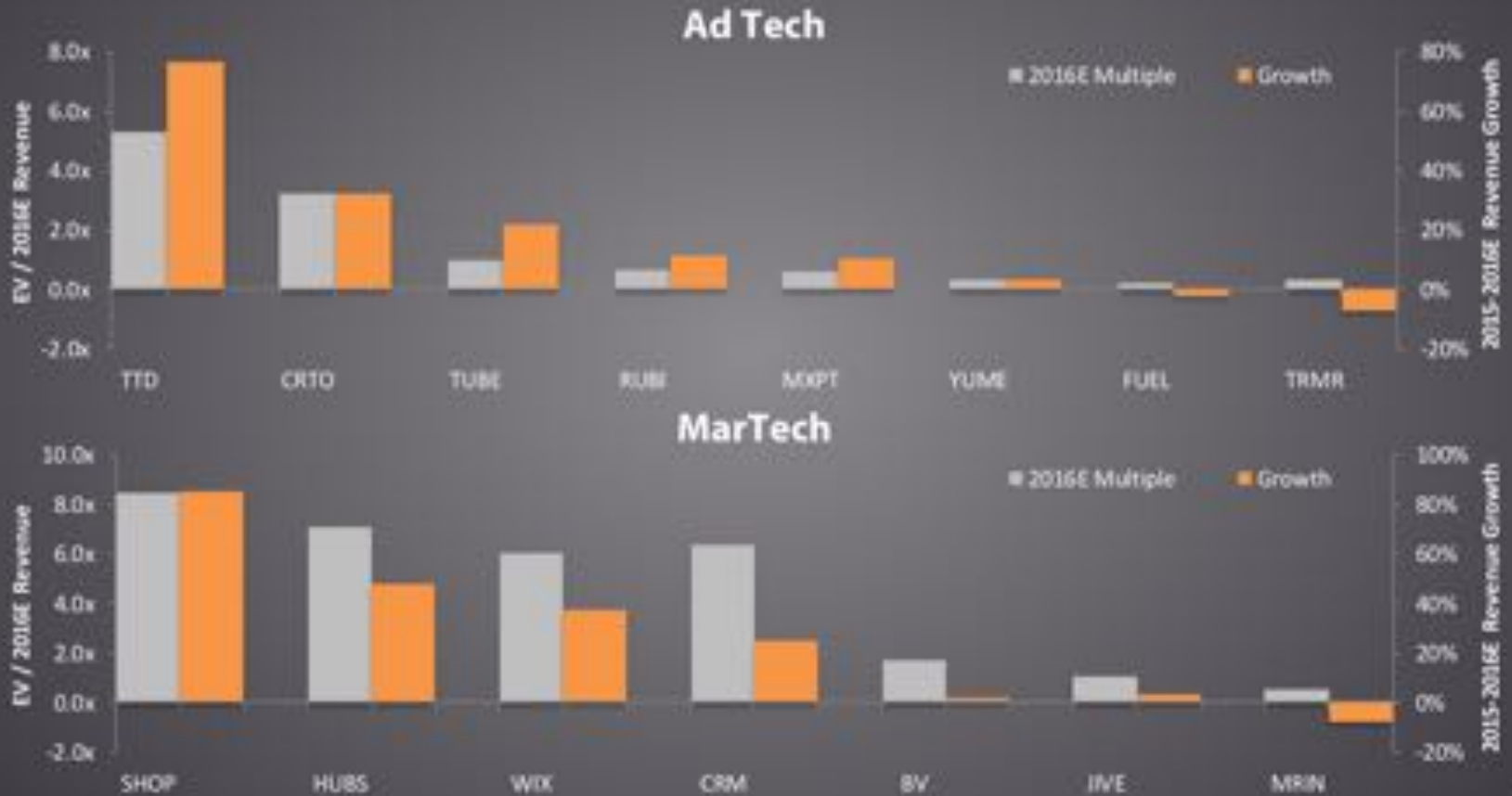
Revenue growth remains the primary driver of multiple across both Ad Tech and MarTech.

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Only 1 Ad Tech / MarTech IPO Since Last DMS West

theTradeDesk

Q4'15	Q1'16	Q2'16	Q3'16	Q4'16

Since our last DMS West a year ago, we seen only one IPO in the Ad Tech and MarTech spaces. The Trade Desk priced in September and is still hovering around its $1 billion valuation, a rare bright spot for public Ad Tech companies and perhaps a signal of more to come.

VC Funding is Challenging

($ in millions)

Chart showing Ad Tech (orange) and MarTech (blue) VC funding from 2007 to 2016, with values ranging from $0 to $3,000 million. Notable peak in 2011 for Ad Tech approaching $2,750 million.
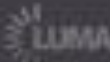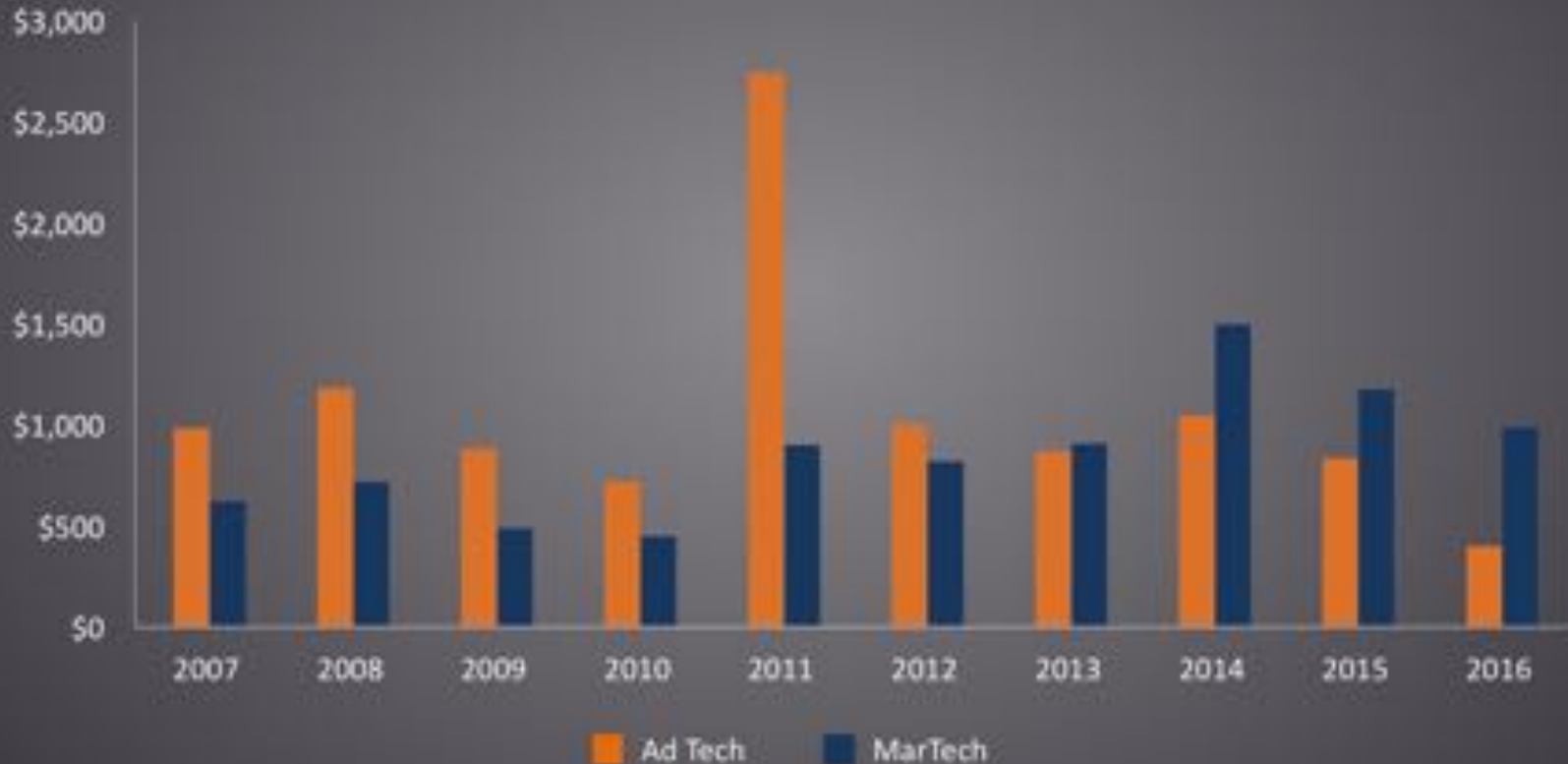
Last year we noted a palpable change in sentiment in the funding environment and this change remains evident in the data with venture capital funding down significantly in MarTech, and even more so in Ad Tech.

Funding is Still Going to Differentiated Companies

$20M+ Raised Since DMS West '15

4C · adform · App Annie · appboy · blippAR · bloomreach · branch

CURALATE · datorama · DOMO · drawbridge · eyeview · factual

FOURSQUARE · Gainsight · KALTURA · LEANPLUM · looker · MOAT

mparticle · Outbrain · [PERSADO] · PlaceIQ · PROSPERWORKS · QUANTIFIND

sessionM · SIGNAL · Spredfast · sprinklr · sproutsocial · SUN DAY SKY
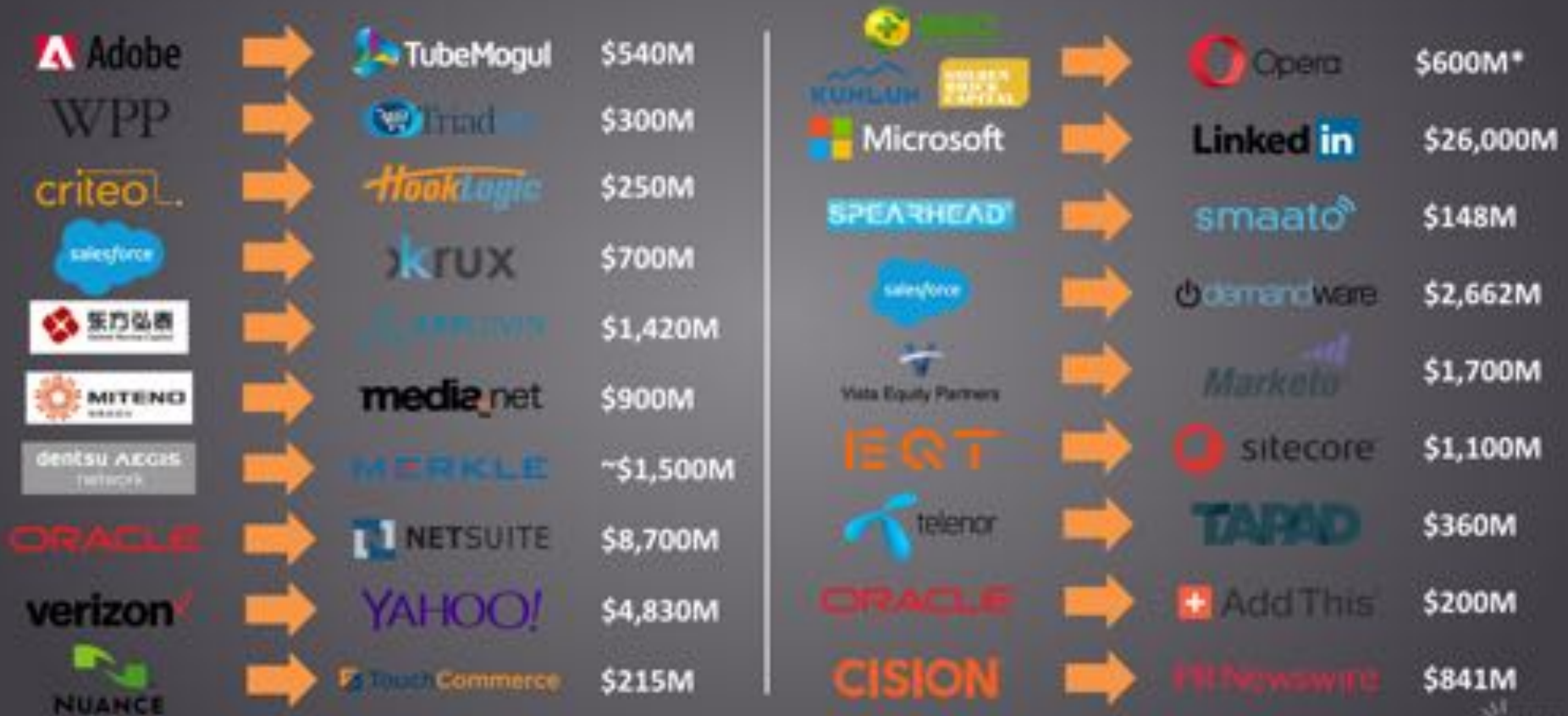
swrve · Tastemade · UMBEL · unity · vibes

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That said, differentiated companies are still finding capital. In fact, over 30 industry leaders have each raised at least $20 million since the last DMS West.

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M&A Has Remained Strong

Adobe	➡	TubeMogul	$540M		
WPP	➡	Trad	$300M		
criteo	➡	HookLogic	$250M		
salesforce	➡	krux	$700M		
东方弘泰	➡		$1,420M		
MITENO	➡	media_net	$900M		
dentsu AEGIS network	➡	MERKLE	~$1,500M		
ORACLE	➡	NETSUITE	$8,700M		
verizon	➡	YAHOO!	$4,830M		
NUANCE	➡	Touch Commerce	$215M		

KUNLUN / GOLDEN BRICK CAPITAL	➡	Opera	$600M*
Microsoft	➡	Linked in	$26,000M
SPEARHEAD	➡	smaato	$148M
salesforce	➡	demandware	$2,662M
Vista Equity Partners	➡	Marketo	$1,700M
EQT	➡	sitecore	$1,100M
telenor	➡	TAPAD	$360M
ORACLE	➡	AddThis	$200M
CISION	➡	PR Newswire	$841M

*Sale of Opera's mobile and desktop browser operations, its performance and privacy apps, its tech licensing not including Opera TV, and Opera's 29 percent stake in Chinese JV nHorizon
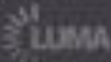
The one real bright spot in the market: M&A! We've seen almost a score of scaled strategic exits in the last year.

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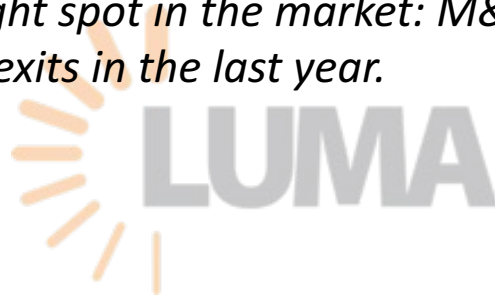
Strategic Multiples in M&A

M&A

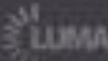### Public Trading

MarTech

8x
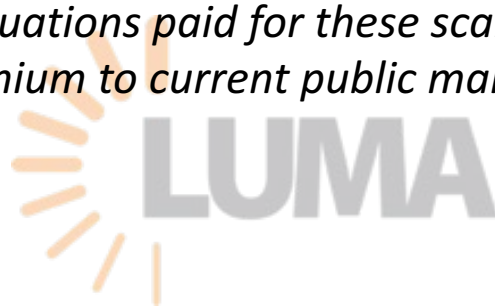EV / LTM Rev

>

5x
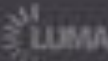EV / LTM Rev

Ad Tech

6x
EV / LTM Net Rev

>

1.5x
EV / LTM Rev

Interestingly, valuations paid for these scaled strategic exits have been at a meaningful premium to current public market valuations.

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A Growing Pool of Strategic Buyers

What is driving this activity? A growing pool of strategic buyers. We see continued activity from the usual suspects like the enterprise software and Ad Tech, but a number of new entrants are also making an active push into this space.
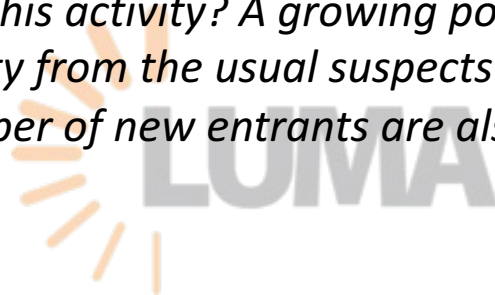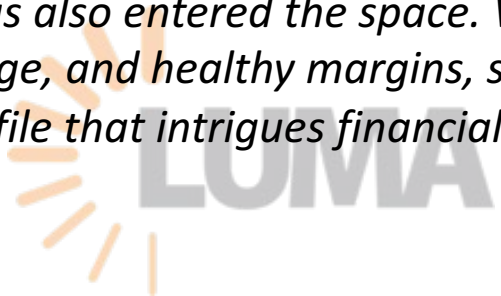
A Growing Pool of Strategic Buyers

Telcos have been very active as they aim to monetize their large customer bases and enter the fast growing digital advertising market. They have already made a number of significant transactions just this year alone. We expect more to come in the near future.
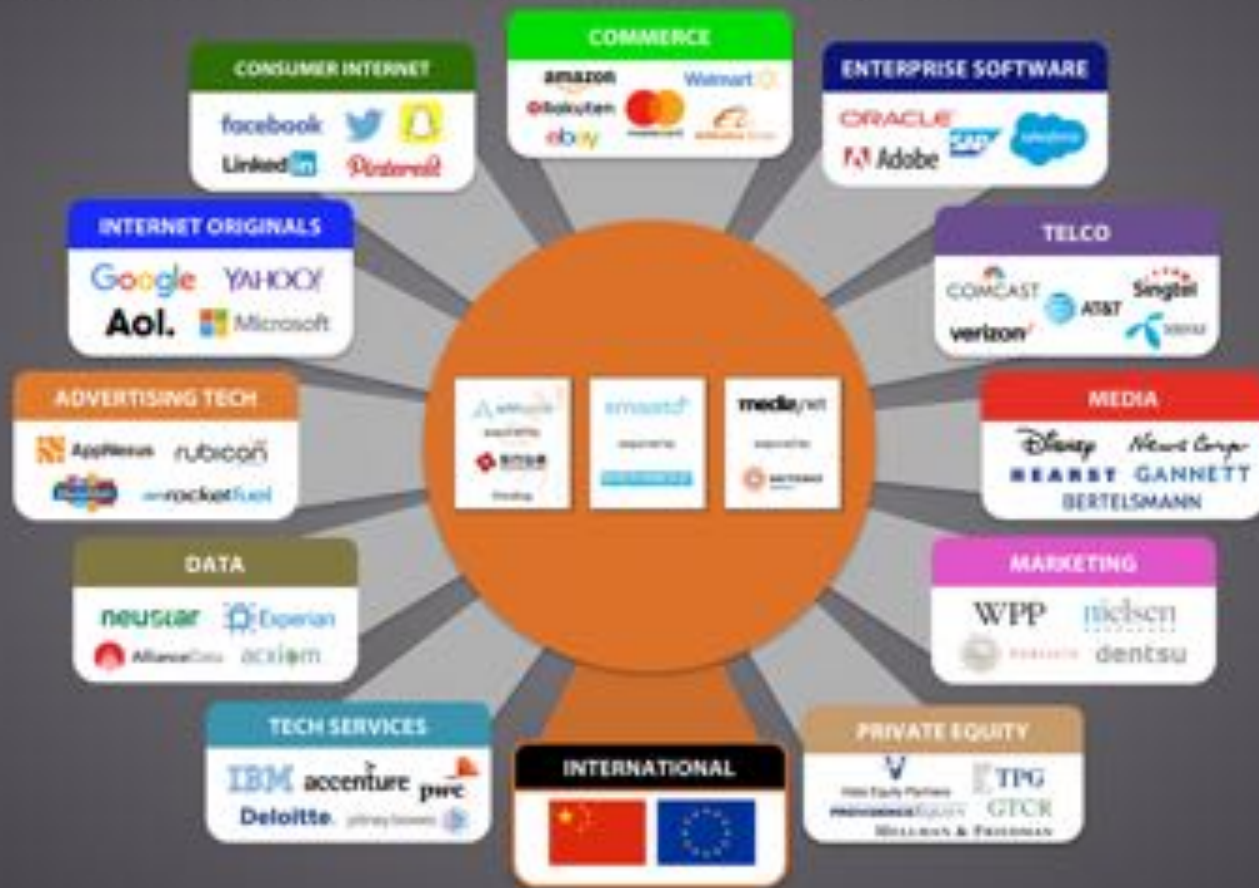
A Growing Pool of Strategic Buyers

Private equity has also entered the space. With predictable revenues, high operating leverage, and healthy margins, some companies in the industry fit the financial profile that intrigues financial buyers.

A Growing Pool of Strategic Buyers

Lastly, international buyers, most notably from China, have been very acquisitive this year.

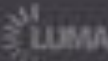# Financial Buyers Are Here For MarTech

Vista Equity Partners → **Marketo**

30-Day Premium: 60%
EV / LTM Rev: 7.5x

THOMA BRAVO → **Qlik**
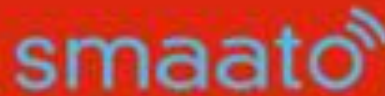
10-Day* Premium: 40%
EV / LTM Rev: 4.1x
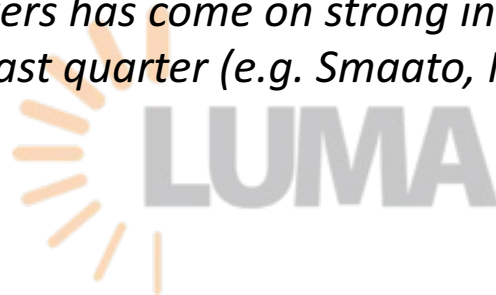
Interestingly, we have seen private equity buyers step up for MarTech assets, paying multiples we typically associate with strategic buyers.

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China Is Becoming an Active Buyer in Ad Tech

And Chinese buyers has come on strong in Ad Tech with a number of scaled exits just in the last quarter (e.g. Smaato, Media.net, and AppLovin).

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2. Industry Trends

Top Digital Marketing Trends

Top Trends

1. Rise of A.I.
2. Ad Tech / MarTech Convergence
3. New Age Marketing Automation
4. B2B Marketing
5. Performance Marketing

A.I. Momentum

"A whole range of technologies are starting to reach the inflection point along the doubling curve where they go from *disillusionment to chaos* to *amazement*."

NOW   **SOON**

In the past 6-12 months there has been increasing focus and awareness on artificial intelligence (AI). However, as Forbes suggested, we are now in a period of skepticism ("disillusionment and chaos") of AI as the market experiments with AI to determine whether it provides a benefit – or not. But we firmly believe that we will be entering the "amazement" phase very soon.

A.I. Momentum

Artificial Intelligence Revenue 2016 - 2025

Forbes

Big Data + Artificial Intelligence = Boom

$36,800M

$644M

Source: Tractica

The AI market is still very early. The above projection reminds us of the programmatic advertising market in 2010 when marketers were first experimenting with the technology. When the industry saw the effectiveness of programmatic, the market took off – and it is now about 2/3 of the display advertising market. We believe the same dynamic will occur with AI as it gets applied more to Ad Tech and MarTech and transforms the industry.

A.I. Momentum

Google

"Machine learning is a core, transformative way by which we're rethinking how we're doing everything. We are thoughtfully applying it across all our products, be it search, ads, YouTube, or Play. And we're in early days, but you will see us – in a systematic way – apply machine learning in all these areas."
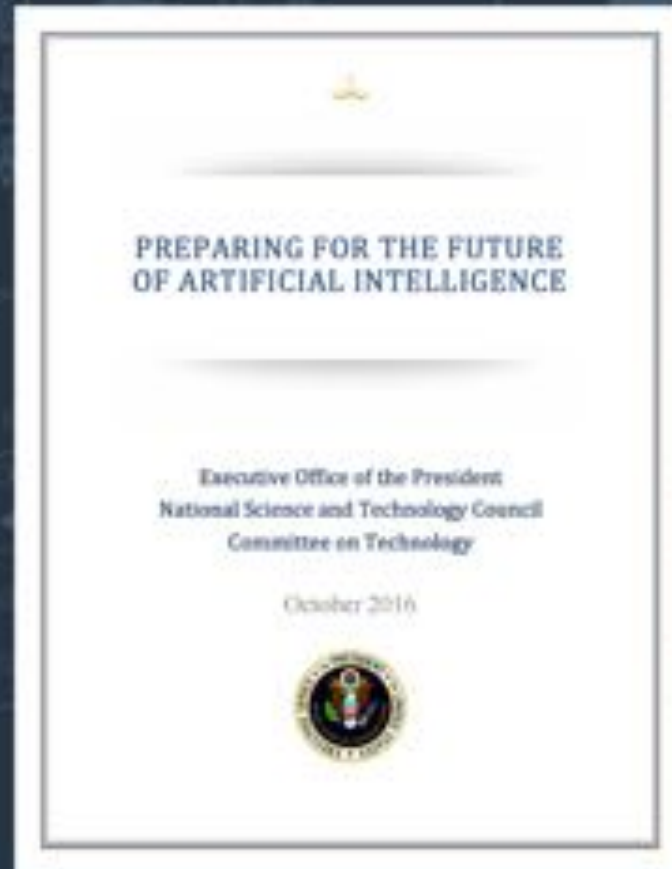
Sundar Pichai, CEO

IBM

"Ginni Rometty is optimistic that the company's wager on 'cognitive computing,' the term it uses for applied artificial intelligence and machine learning technologies, is the biggest bet the company will make in its 105-year history."

Fortune, "IBM's CEO Thinks Every Digital Business Will Become a Cognitive Computing Business"

We aren't the only ones bullish about AI. Tech giants like Google and IBM are making significant investments in this technology. Google is planning to apply machine learning across all its products, and IBM is making the "biggest bet" in its history around cognitive computing.

Even the President is Weighing In

PREPARING FOR THE FUTURE OF ARTIFICIAL INTELLIGENCE

Executive Office of the President
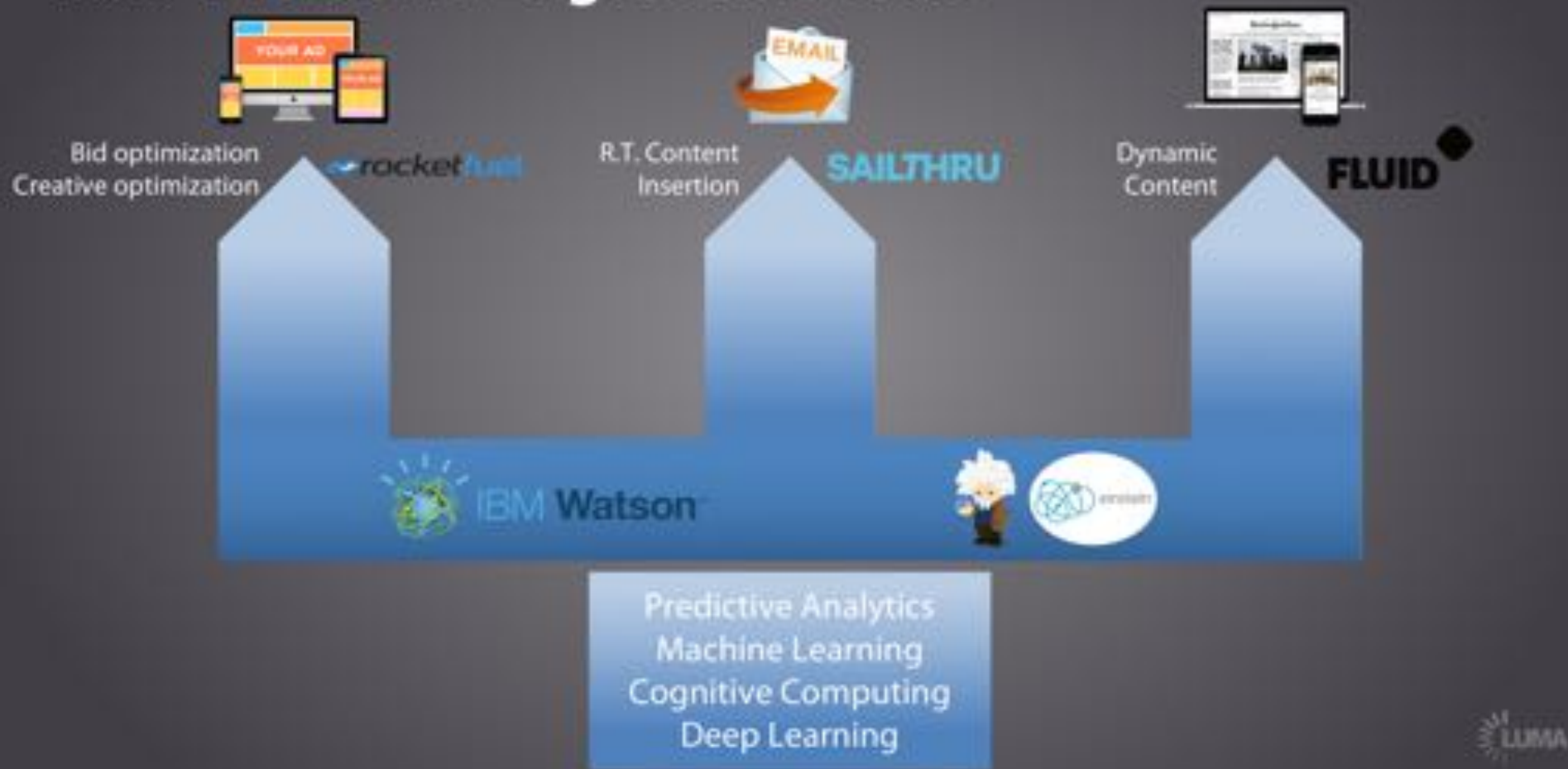National Science and Technology Council
Committee on Technology

October 2016

Even the President is weighing in. AI will be applied across a multitude of industries: automotive and transportation (self-driving cars and long-haul transportation), health care, research and - our focus area - marketing and advertising.
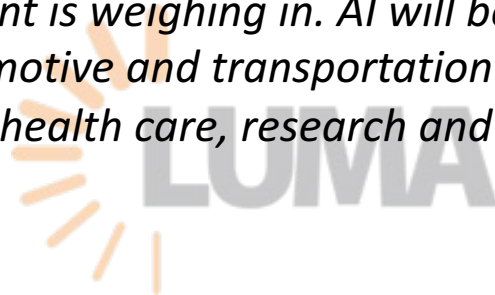
A.I. - From the Edge to the Core

AI has been applied to the marketing industry for some time but mainly at the "edges", meaning narrow, specific use cases. For instance, in display advertising, AI has been applied to bid / creative optimization, and predictive analytics have been utilized for real-time content insertion for websites and email. We believe that AI will now move towards the "core" to coordinate activities across these channels. More on this later in the presentation...

Convergence through M&A
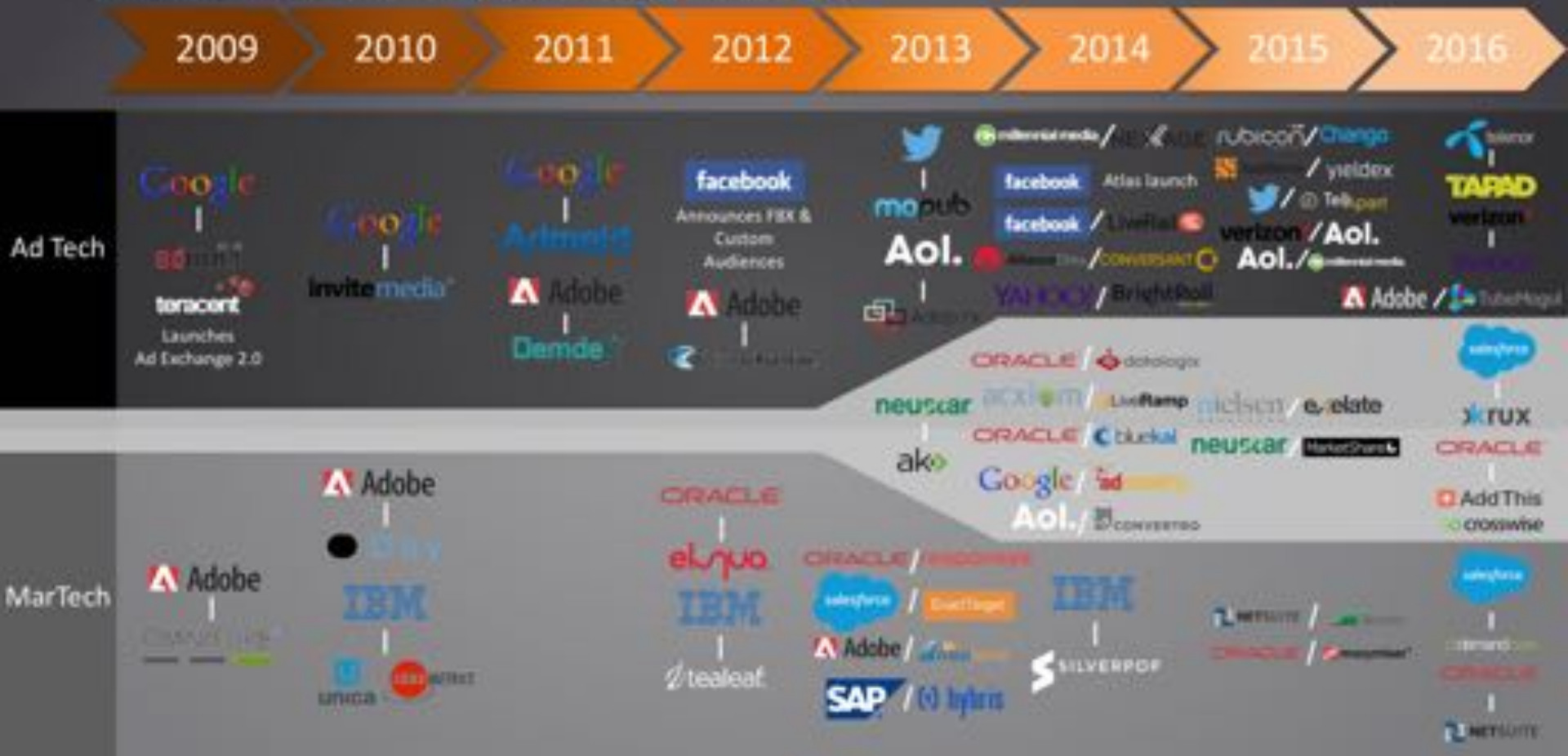
In the past Ad Tech and MarTech were very distinct industries, with little connection between the two. As Ad Tech evolved into data-driven advertising and MarTech into data-driven marketing, we have seen the data layer become the conversion point for these industries. This consists of DMPs, online / offline data, and planning and attribution systems.

Convergence through M&A

| 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 |

AdTech / MarTech Convergence:

1. Evolution of Data Technologies

2. Identity

Ad Tech

MarTech

Two sub-trends that are part of the larger Ad Tech / MarTech convergence trend are: 1) the evolution of data technologies, specifically DMPs, and 2) the rise of "identity" solutions as a critically strategic capability in the market.

Evolution of the Data Management Platform

Cookie Mgmt. for Display

Data Analytics / Tag Management

Web Personalization & A/B Testing

Mobile / Cross-Device / Location

Adobe → Demdex

neustar → ak◇

2010 2011 2012 2013 2014 2015
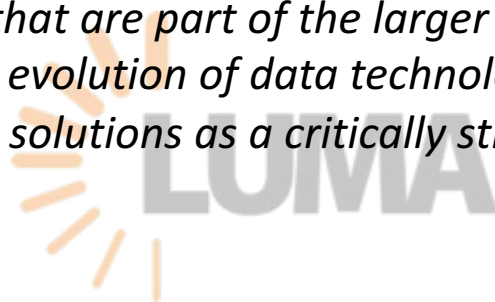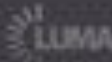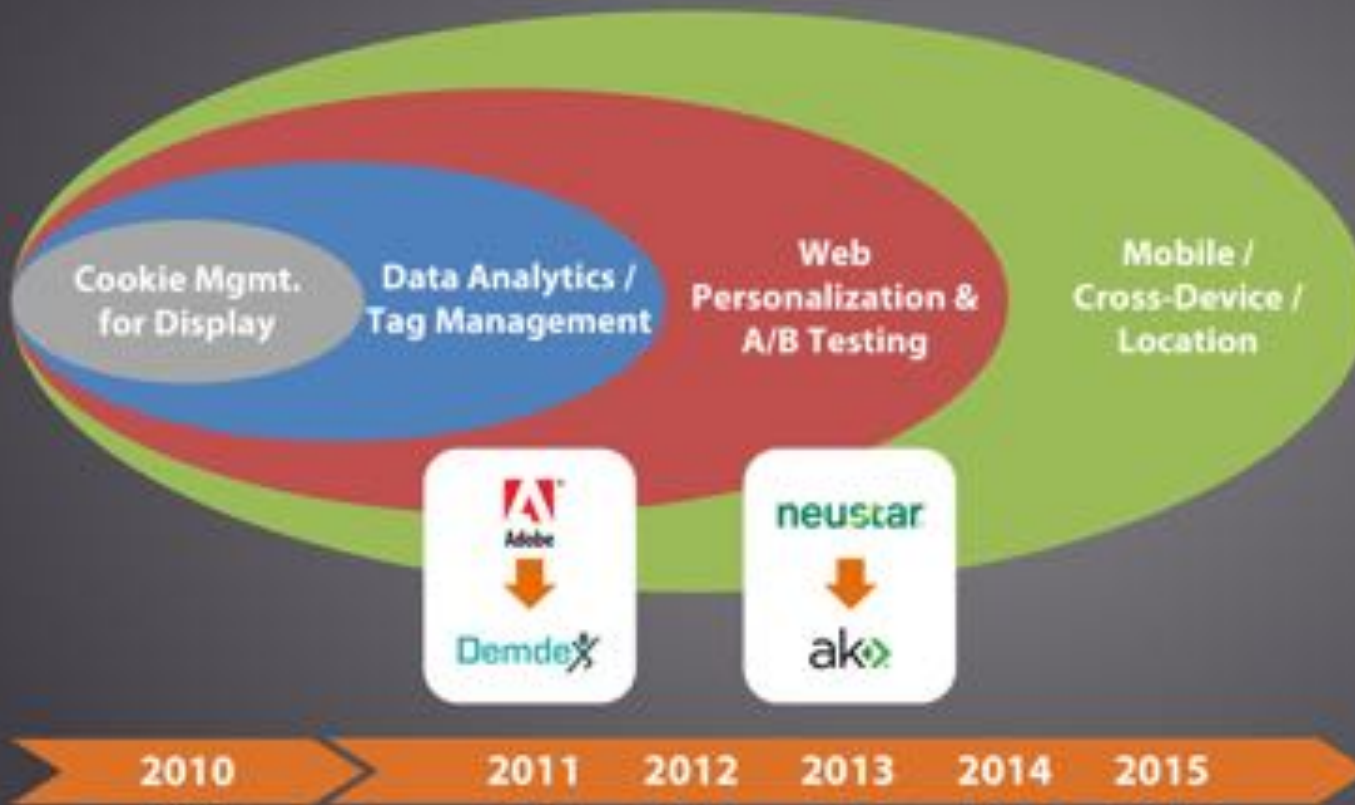
When Demdex, one of the earliest DMPs, launched in 2010, it was primarily a cookie management platform for display advertising for publishers. In recent years, the capabilities and use cases of DMPs have expanded. DMPs now include additional functionality such as data analytics and tag management plus robust mobile data management. And use cases have expanded from just display advertising to areas such as web personalization and A/B testing.

Evolution of the Data Management Platform

Cookie Mgmt. for Display | Data Analytics / Tag Management | Web Personalization & A/B Testing | Mobile / Cross-Device / Location | CRM

Adobe → Demdex
neustar → ak<>
salesforce → xkrux

2010   2011   2012   2013   2014   2015   2016
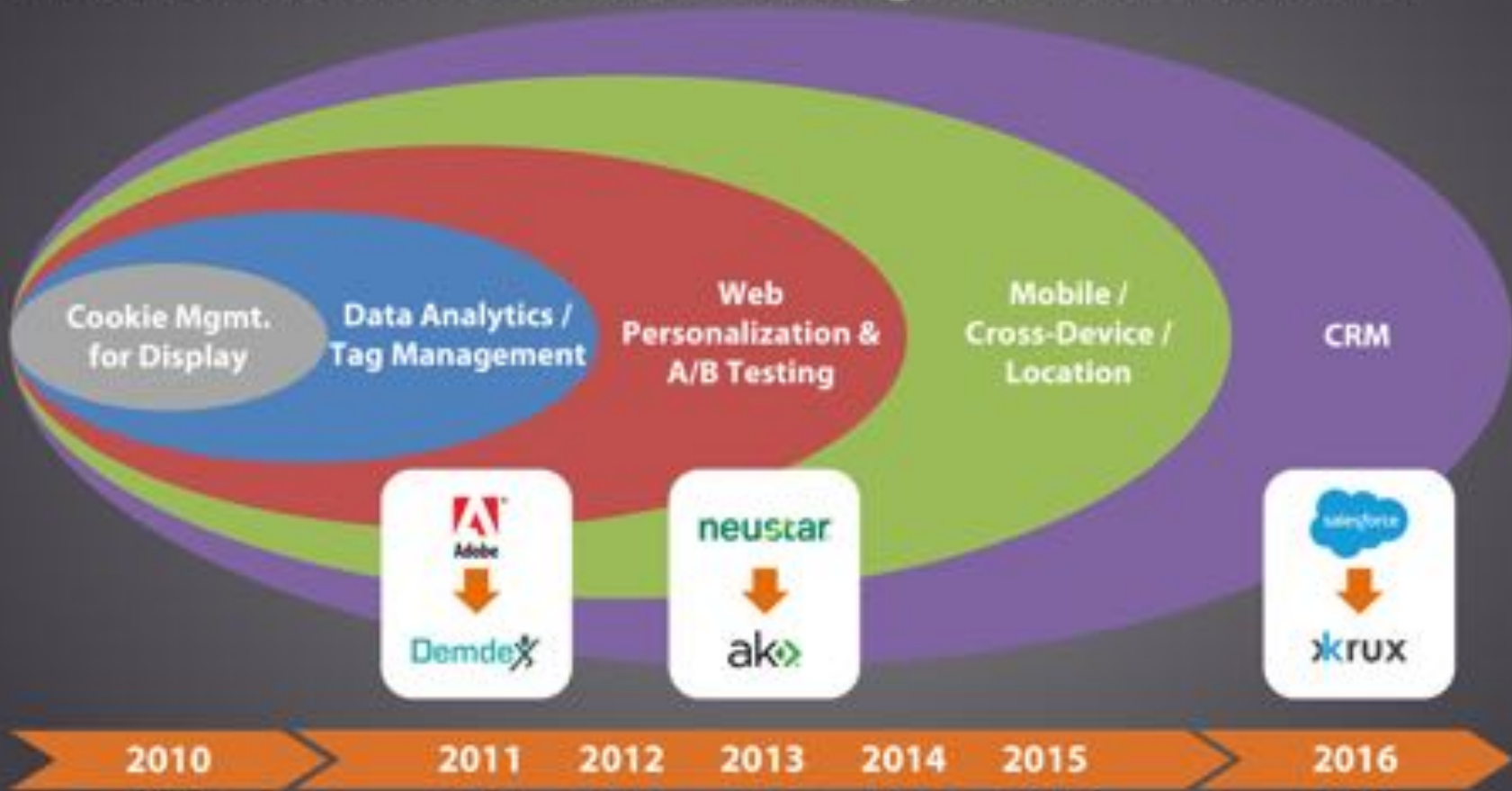
It has long been church and state between CRM systems and DMPs, separating personally identifiable information (PII) from anonymous data, but we are now starting to see these data sets start to blend within platforms such as DMPs. It will be especially interesting to see how Salesforce integrates Krux once that acquisition closes – and whether they combine PII and traditionally "anonymous" data sets.

Evolution of the Data Management Platform

"DMPs sit at the center of the marketing cloud, bridging the gap between Ad Tech and MarTech. As enterprises discover the Ad Tech power of data-driven decisioning, they, too, will embrace the opportunity to harness, learn from, and deploy data for better business results with email and web content customization, among other areas. With the DMP at the center, the marketing cloud will be the hub of enterprise intelligence."
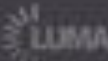
– Forrester

2010   2010   2011   2012   2013   2014   2015   2016
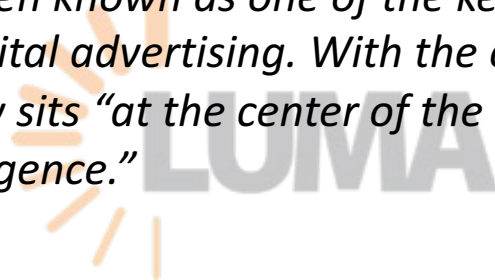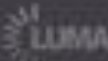
The DMP has been known as one of the key software platforms to enable targeting for digital advertising. With the evolution of DMP capabilities and use cases, it now sits "at the center of the marketing cloud" as the "hub of enterprise intelligence."

"DMPs" Enable Second Party / Co-Op Sharing

HOTEL

DMP

Second Party Data Sharing

Data Co-Op

DMP

DMP

Despite the evolution of the DMP, we are still in the very early innings of this industry. Large enterprises are only just beginning to implement DMPs and managing their first-party data assets effectively. One trend we believe will emerge is a dramatic rise of second-party data sharing among companies in complimentary industries as well as the growth of data co-ops. Adobe is pursuing this opportunity aggressively with its Audience Marketplace.

Phase 1: Consolidate Point Solutions

If you observe the rise of the Marketing Clouds, you will notice that they have been very focused on consolidating point solutions (Phase 1) – which makes sense. As mentioned earlier, DMP capabilities and use cases have expanded. ESPs such as Exact Target have also evolved, adding SMS and social channels to their platforms. But across all the marketing clouds, the various point solutions are still fairly channel-focused with only minimal integration.
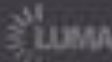
Phase 2: Orchestration
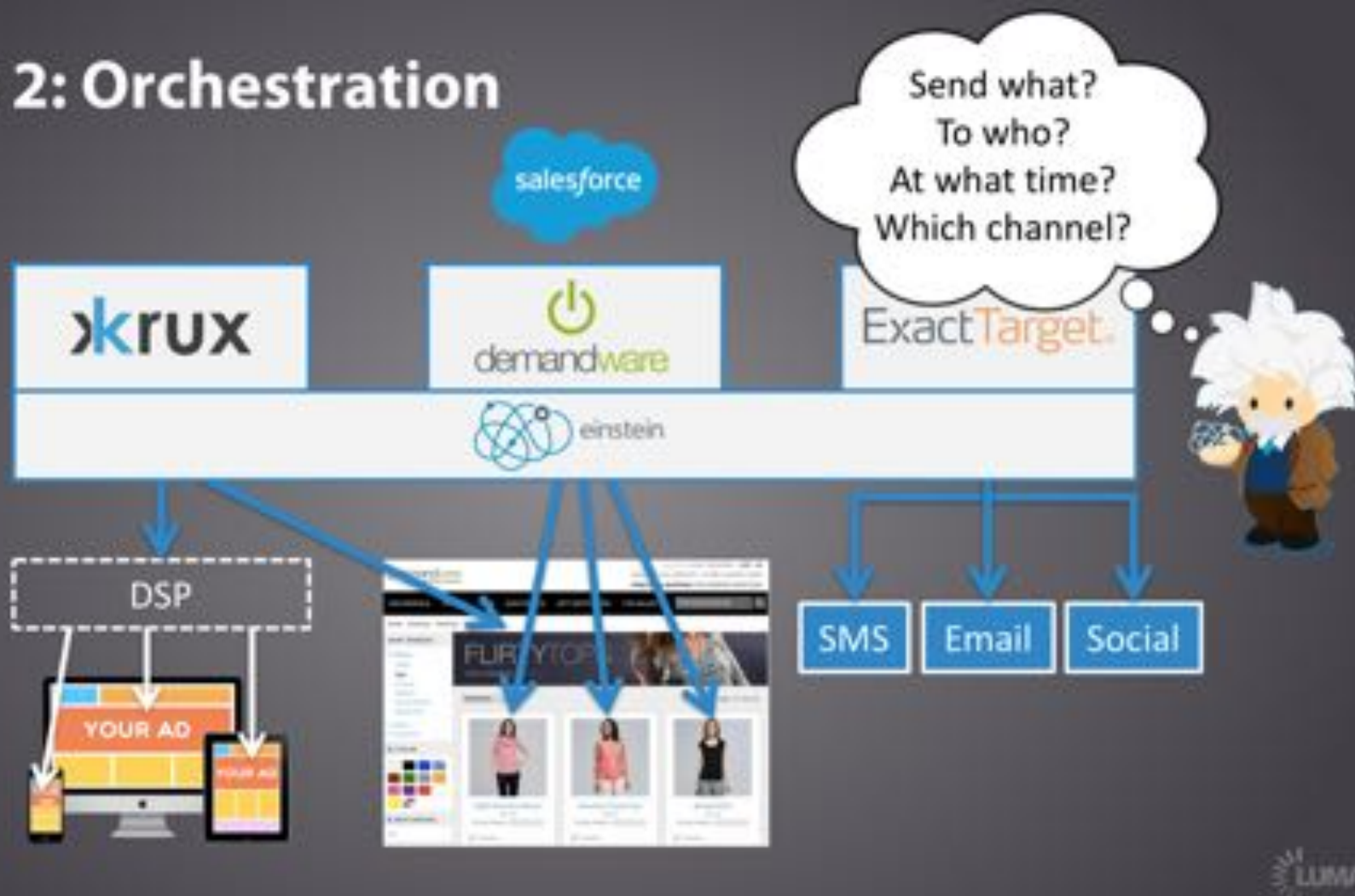
We believe the Marketing Clouds will now aggressively move to "Phase 2", which is to "orchestrate" activities across channels in order to optimize the customer experience. This orchestration layer will include both rules-driven and AI approaches to help marketers accomplish true 1:1 marketing: sending the right message to the right person at the right time through the right channel. This will drive further convergence of Ad Tech and MarTech.

Developing Identity Solutions

"Identity" is a key industry focus since it is critical to being able to coordinate the customer experience. Identity offerings have been advancing rapidly, with incumbents furthering their offerings while others have entered the market. We have long talked about Oracle being the most active in building its identity solutions with its "Data Cloud", but there are other major players building robust identity solutions, such as Adobe, Neustar and Acxiom.

The Identity Graph

Planning, Targeting, Measurement

Purchase	Demographic	Behavioral	Digital IDs	Location
CPG	Age	In-market	Email	Work
Auto	Gender	Interest	Mobile ID	Home
Specialty Retail	Ethnicity	Lifestyle	Mobile Browser	Commute
Financial	Education		Mobile Apps	Shopping
Financial	Party		Laptop	Recreation
Media	Employment		Tablet	
Restaurant			Connected TV	

Datalogix acxiom Add This ADBRAIN !NFO

DATALINE blue crosswise NinthDecimal

financial audiences EPSILON .com. drawbridge

IRi TiVo Research TAPAD IQ

MasterCard Advisors

LUMA

The "identity graph", which organizes multiple data sets – purchase, demo, behavioral, digital IDs and location – for each individual, has emerged as a key identity offering. The identity graphs not only enable sophisticated targeting for marketing, but also feed into planning and measurement applications as well. We will continue to see significant investment in identity graphs from the Marketing Clouds and startups alike.

Top Digital Marketing Trends

Top Trends

1. Rise of A.I.
2. Ad Tech / MarTech Convergence
3. New Age Marketing Automation
4. B2B Marketing
5. Performance Marketing

Next Gen Marketing Automation

"Orchestration" at the Core

Predictive Marketing: The Core Capabilities — May 2014

Mobile Marketing — Nov 2015

Predictive marketing platforms emerged a few years ago and are being adopted by e-commerce companies to enable 1:1 personalization. These systems combine data from e-commerce platforms (providing purchase history for each user), browsing data (short-term browsing behavior) and other systems. Combined with a predictive analytics engine and a product feed, these platforms then coordinate personalized content across channels.

Next Gen Marketing Automation

"Orchestration" at the Core
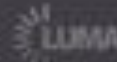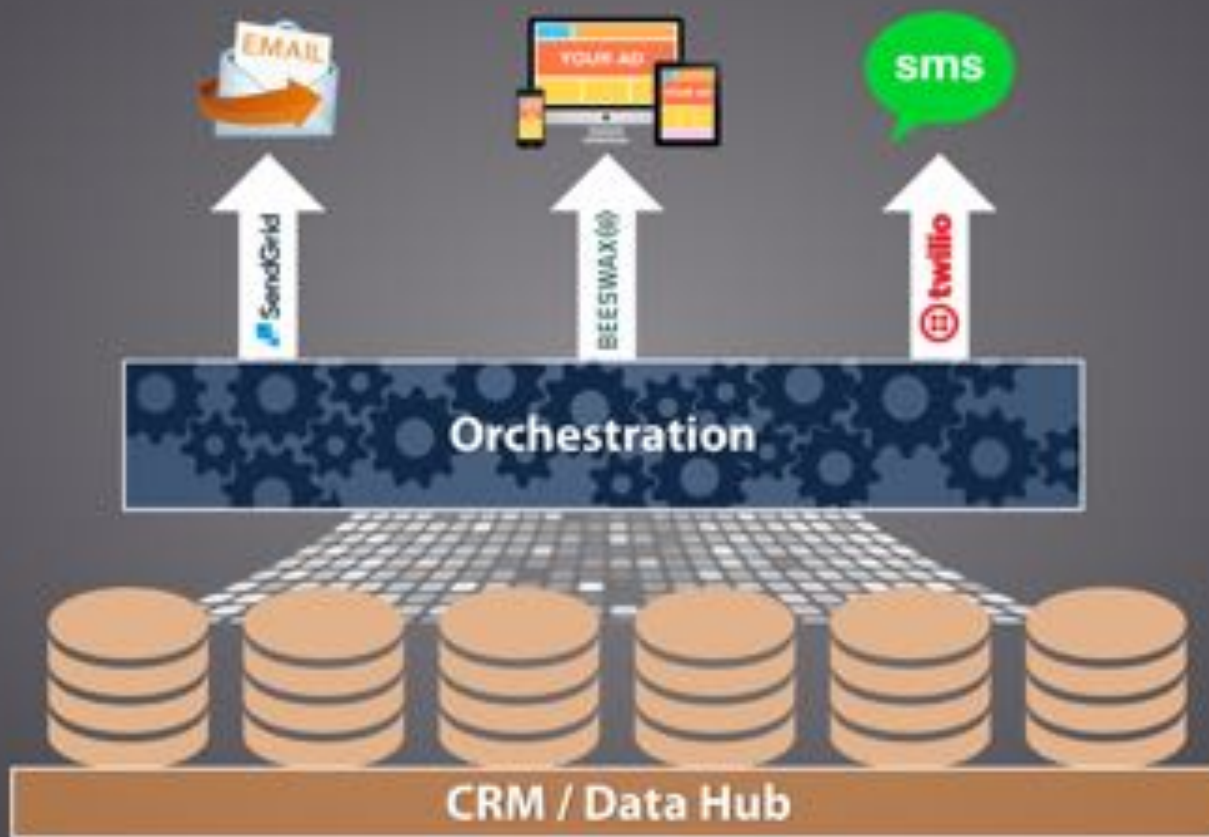

Mobile marketing automation companies emerged due to dynamics in the app economy: 1) consumers are downloading fewer apps, 2) it is expensive to acquire new users, and 3) most apps are free and app publishers struggle to monetize users. These platforms create profiles on each user, and coordinate triggered messages: in-app, push notifications and emails. Some also help optimize the app with analytics and A/B testing.

Next Gen Marketing Automation

What do "predictive marketing" and "mobile marketing automation" companies have in common? They both have a data hub / CRM system at the core, and also provide the orchestration for interactions with each consumer. Unlike the Marketing Clouds, with point solutions that need orchestration, these have orchestration at the core. If they need to add a new channel, such as email or SMS, they generally use OEM systems such as SendGrid or Twilio.

Top Digital Marketing Trends

Top Trends

1. Rise of A.I.

2. Ad Tech / MarTech Convergence

3. New Age Marketing Automation

4. B2B Marketing

5. Performance Marketing

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B2B Marketing

Key Trends:

1. **Account Based Marketing**
   - Right Message at Right Time to Right *Accounts*

2. **Predictive Analytics**
   - Identify Prospects
   - Intelligent Lead Scoring

3. **Convergence of MarTech & Sales Tech**
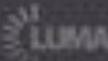
We have talked about account-based marketing (ABM), delivering the right message at the right time to the right account, and predictive analytics, which folds into ABM. They both have grown dramatically in the last year. The next key trend to watch is the convergence of MarTech and Sales Tech. While Ad Tech and MarTech convergence applies to B2C marketers, MarTech and Sales Tech convergence applies to B2B marketers with direct sales teams.
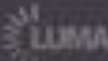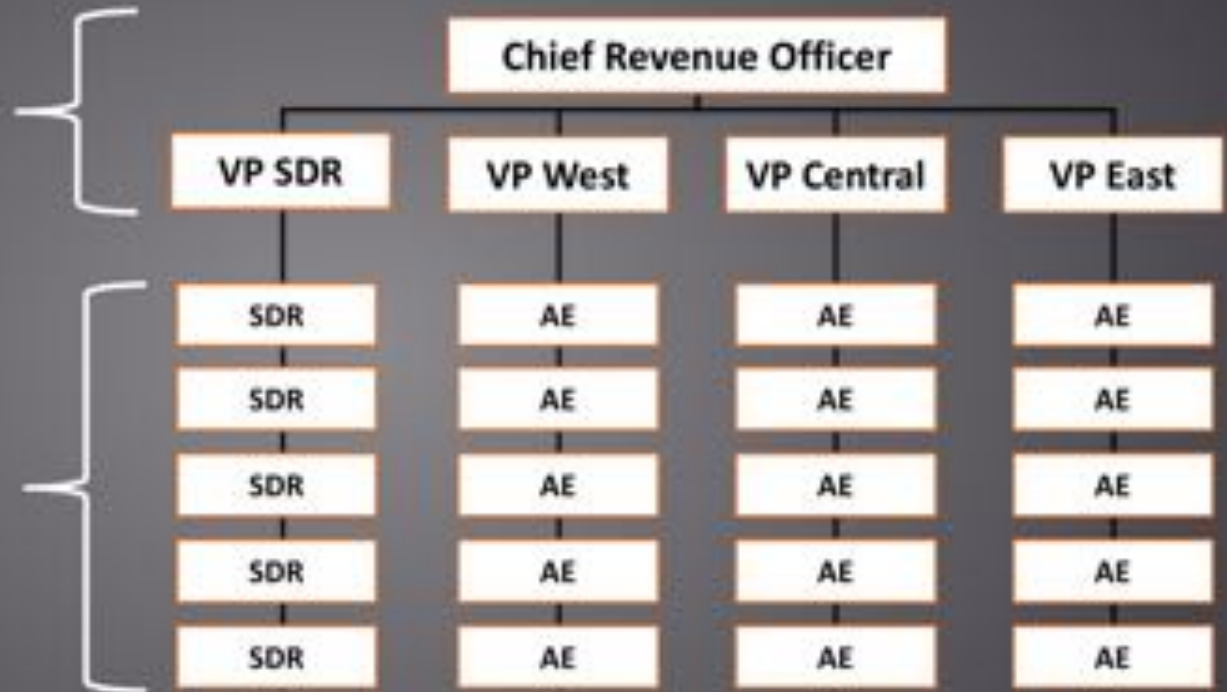
Introducing the Sales Tech LUMAscape
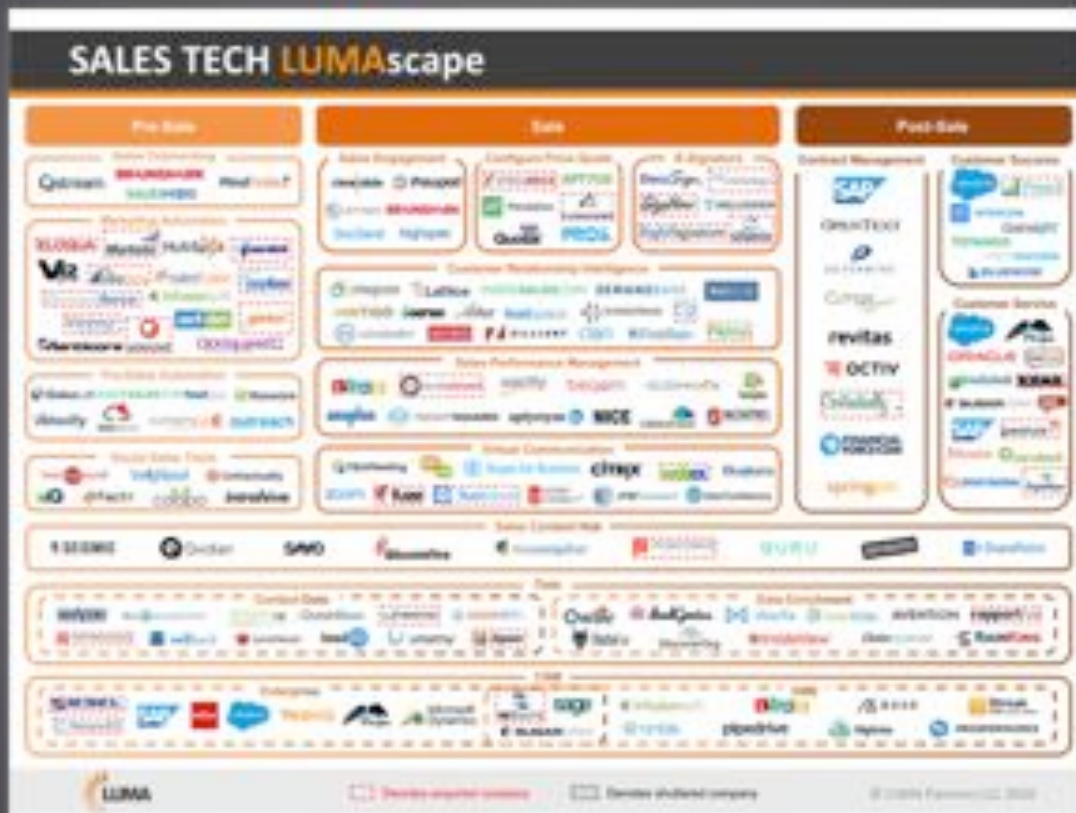
There is now a burgeoning ecosystem of companies focused on building tools for key steps and workflows within the entire sales process. We have created the Sales Tech LUMAscape to help map out the growing ecosystem, which you can find on www.lumapartners.com.

Sales Tech: Arming the Sales Team

salesforce

Chief Revenue Officer			
VP SDR	**VP West**	**VP Central**	**VP East**
SDR	AE	AE	AE
SDR	AE	AE	AE
SDR	AE	AE	AE
SDR	AE	AE	AE
SDR	AE	AE	AE

CRM systems like Salesforce are focused on the management layer of an organization, not the individual sales person. In the last couple years we have seen an increasing number of startups emerge that are focused on making the actual account executive or SDR more effective at his / her job. Investors have recognized this as well, as we are seeing more VC investment and growth in this area.

The History of Performance Marketing

Toolbar Companies

**Coupon Sites**

Incentive Sites

SPAM   INCREMENTAL SALES?   ADWARE   SCAM

During the early days of performance marketing, the industry was filled with very questionable businesses from toolbar companies to incentive sites. Not only did these companies not drive incremental sales, but they also drove spam, adware and other problems. When performance marketing is mentioned today, many still conjure up images of these questionable practices.

Performance Marketing Today
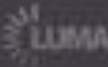
But what defines performance marketing today? Google and Facebook.

The Digital Duopoly Continues to Grow

Q1 2016

1H 2016

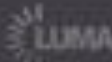GOOGLE AND FACEBOOK DOMINATE INCREMENTAL AD SPEND

15%

85%

>100%

LUMA
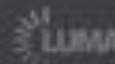
In May, Morgan Stanley reported that Google and Facebook captured over 85% of incremental digital ad spend in Q1 2016. This is a very tough dynamic for the rest of the ecosystem battling over the remaining 15%. A recent analysis concluded that Google and Facebook actually captured over 103% of the growth in the first half of 2016. In other words, the rest of the industry may actually be shrinking.

Performance Advertising Driving Value

Annual Net Revenue
($ in millions)

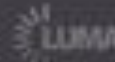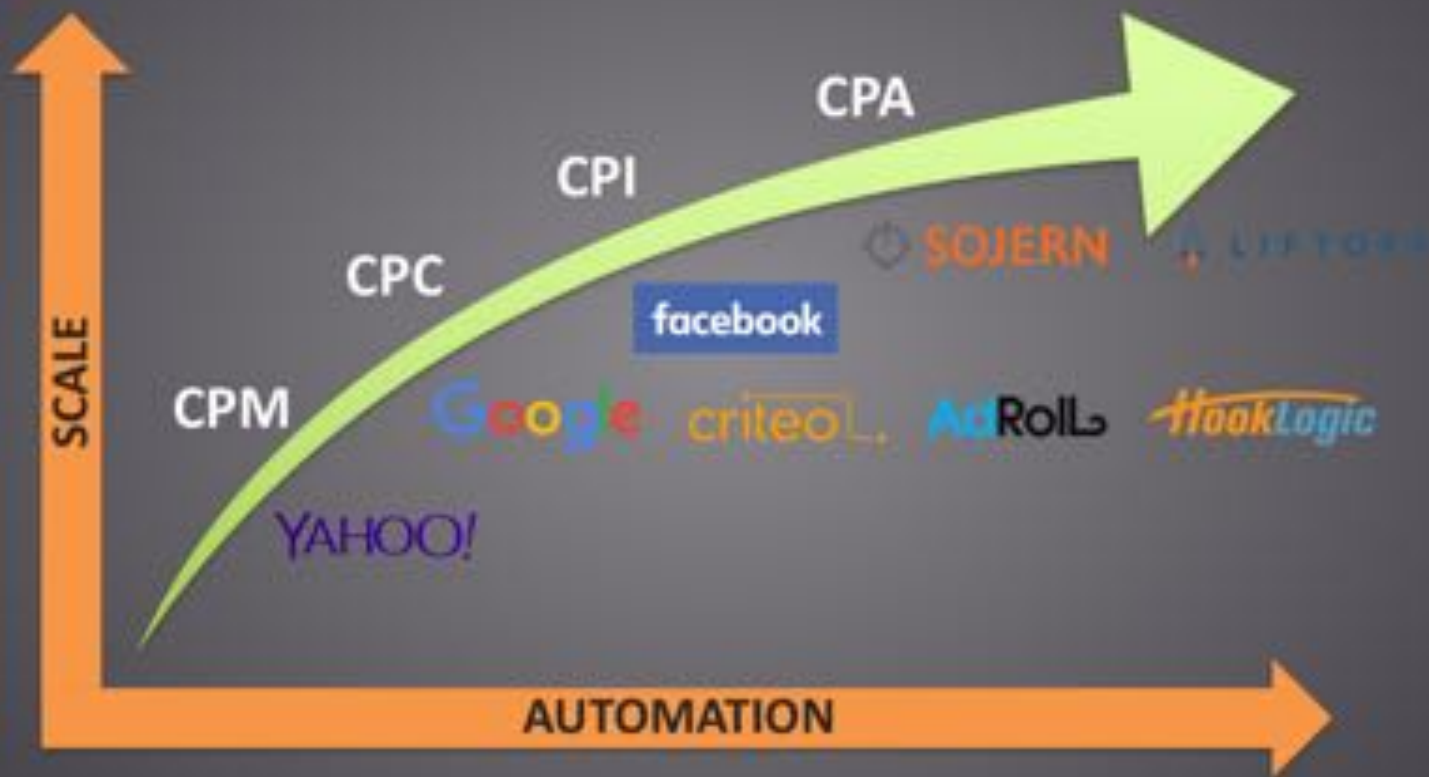| Year	Revenue
2012	$151
2013	$247
2014	$403
2015	$534
2016*	$715
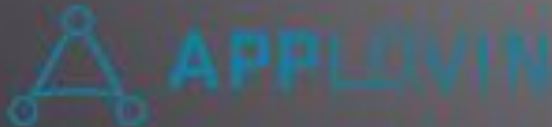
$1.4B Acquisition

Source: Company Filings
Note: CRTO 2016 revenues are analyst estimates

But not all is lost. Marketers want performance and if a vendor can deliver it, they will continue to spend. Criteo has built a scaled business by servicing advertisers directly and using CPC pricing. Customers spend up to the efficient frontier, just like search, resulting in always-on ad spend. AppLovin has built a tremendous business with staggering growth and profitability through developing terrific technology and using pricing that aligns with its customers.

Operating Leverage Increases With Automation

SCALE

CPA

CPI

CPC

facebook

CPM

Google criteo AdRoll HookLogic

SOJERN LIFTOFF

YAHOO!

AUTOMATION

LUMA

We have witnessed the evolution of pricing models from CPM to CPC to CPI, and ultimately CPA, driving the action marketers are trying to achieve. By aligning pricing with its customers' desired outcomes (and developing robust technology to deliver those outcomes), leading performance marketing companies are able to create terrific scaled, predictable and profitable businesses.

Performance vs. Media vs. SaaS

Revenue Growth %

S&M / Net Revenue

We hear some people say that Criteo is just an ad network. However, let's compare Criteo to the public ad networks and also to the most successful SaaS company: Salesforce. In 1H'16, Criteo had higher revenue growth with lower S&M cost as a percentage of revenue – highlighting its predictability of revenues and high operating leverage. The public ad networks, in contrast, generally are not growing and have higher costs in general.

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