



TECHNOLOGY, MEDIA & TELECOM

INTERNET & DIGITAL MEDIA SECTOR REVIEW | 3Q 2019

HW Harris Williams

HARRIS WILLIAMS OVERVIEW

HARRIS WILLIAMS (“HW”) GLOBAL ADVISORY PLATFORM

KEY FACTS

- Founded in 1991
- 360+ professionals across eight offices globally
- 21st record year in 2018
- 10 industry groups



HW TECHNOLOGY, MEDIA & TELECOM (“TMT”) GROUP FOCUS AREAS

VERTICAL FOCUS AREAS

- Compliance Software
- CRM and Member Management Software
- Data and Analytics
- Enterprise Software
- Human Capital Management
- Infrastructure and Security Software
- IT and Tech Enabled Services
- Managed Services, Hosting, Data Center Solutions
- Online Marketing, Data, and Research

HORIZONTAL FOCUS AREAS

- Architecture, Engineering, and Construction
- eCommerce and Retail Software
- Education Technology
- Energy Technology
- Facilities and Real Estate Technology
- Financial Technology
- Government Technology
- Healthcare IT
- Industrial and Supply Chain Software

SELECT RECENT HW TMT TRANSACTIONS

 <i>has acquired</i> 	 <i>has been acquired by</i> 	 <i>has received an investment from</i> 	 <i>has been acquired by</i> 	 <i>pending acquisition by</i> 	 <i>has been acquired by</i> 	 <i>has been acquired by</i> 	 <i>has been acquired by</i> 	 <i>has received a controlling investment from</i> 	 <i>has acquired</i> 	 <i>has been acquired by</i> 	 <i>has acquired</i>
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TMT CONTACTS

UNITED STATES

Mike Wilkins
 Managing Director
mwilkins@harriswilliams.com

Tyler Dewing
 Managing Director
tdewing@harriswilliams.com

Sam Hendler
 Managing Director
shendler@harriswilliams.com

EUROPE

Thierry Monjauze
 Managing Director
tmonjauze@harriswilliams.com

TO SUBSCRIBE PLEASE EMAIL:

*tmt_reader@harriswilliams.com

SELECT IDM M&A TRANSACTIONS – 3Q 2019¹

Closed September 30, 2019

Blackstone's acquisition of Vungle

- Vungle provides a performance marketing platform that enables publishers to generate revenue through in-app video advertisements
- The Company partners with publishers of more than 60,000 mobile apps worldwide, serving more than 4 billion video views per month
- The investment represents a new platform for Blackstone in a segment of the internet economy that continues to grow quickly and attracts a wider audience

Closed August 28, 2019

Accenture's acquisition of Analytics8

- Analytics8 provides data management, reporting and visualization, data science, and analytics services
- The Analytics8 team is based in Australia and comprised of 70 professionals with deep technical expertise and experience advising clients across a range of industries
- The acquisition of Analytics8 further deepens Accenture's technical abilities, bolstering its applied intelligence capabilities and helping customers further leverage data and analytics to transform businesses

Closed August 21, 2019

Etsy's acquisition of Reverb

- Reverb provides an online marketplace designed for new, used, and vintage music gear
- Reverb's platform leverages transaction data to determine the market value of instruments, enabling consumers to buy and sell them in an easy and affordable manner
- The acquisition enables Etsy to immediately become a leader in a new vertical with a rooted user base, while also focusing on its core business model, connecting buyers and sellers

Announced August 8, 2019

Ropers' pending acquisition of iPipeline

- iPipeline provides cloud-based software solutions for the life insurance and financial services industries
- iPipeline's platform is used by approximately 150 carriers, 1,350 distributors and financial institutions, and their agents and licensed advisors in a cloud-based environment
- Roper's acquisition of iPipeline fits well within its strategy of finding category leaders in a niche markets and the acquisition will provide a long-term foundation to further develop iPipeline's proprietary technology platform

Closed August 12, 2019

Syndigo's acquisition of Sellpoints

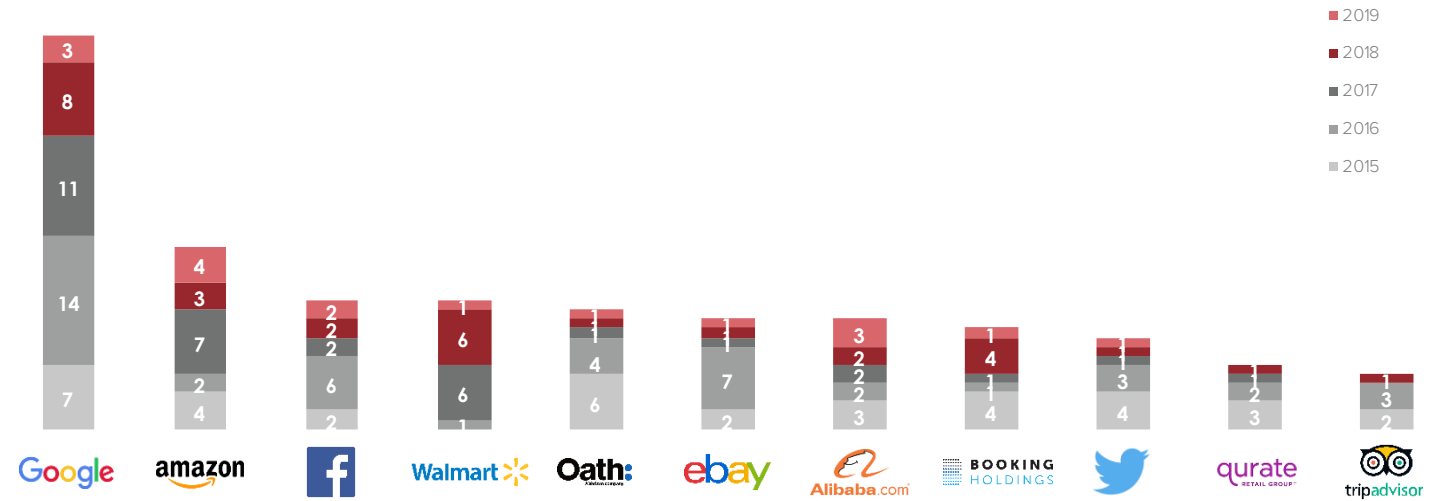
- Sellpoints provides an eCommerce optimization platform that allows brands to tell product stories that inform, inspire, and engage their customers using interactive "hotspots" that contain key product content
- The combined product offerings will integrate rich media and other enhanced content on the product detail page, delivering solutions that will enable brands and retailers to provide their customers with added transparency and information
- With the acquisition of Sellpoints, Syndigo enhances its content analytics capabilities and positions the combined entity to receive greater wallet share by going to market with the combined offering

IDM ACQUISITION ACTIVITY

MOST ACTIVE STRATEGIC ACQUIRERS OF IDM ASSETS BY VOLUME²

- Strategics are continuing to pay a premium for assets that align with their corporate strategies; notably Salesforce's acquisition of Tableau.
- The most active strategic acquirers of IDM assets made a combined five acquisitions in 3Q 2019, the annualized 2019 total of 34 is just ahead of the 30 acquisitions made in 2018.

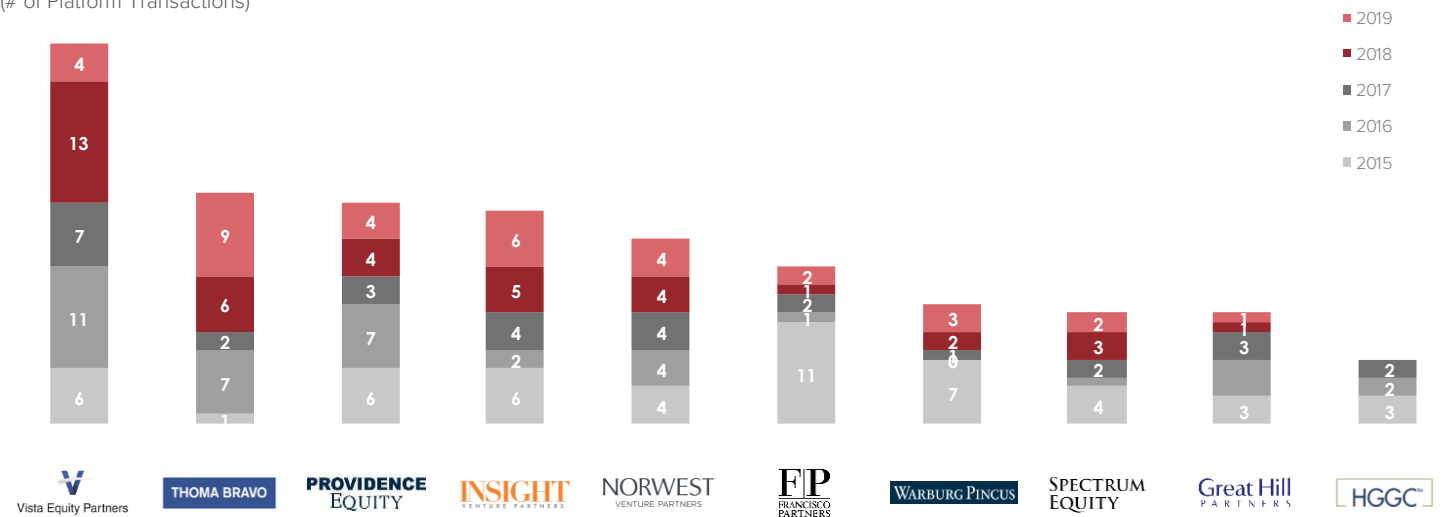
(# of Transactions)



MOST ACTIVE PRIVATE EQUITY BUYERS OF NEW IDM PLATFORMS BY VOLUME²

- The 10 most active private equity investors in IDM assets remained notably active with 10 acquisitions completed in 3Q 2019 slightly down from 12 acquisitions in 2Q 2019.
- Providence Equity Partners remains one of the more prolific acquirers of new IDM platforms, logging two additional IDM acquisitions in 2Q 2019 (I'Car Systems-DATAFIRST and Chatmeter).

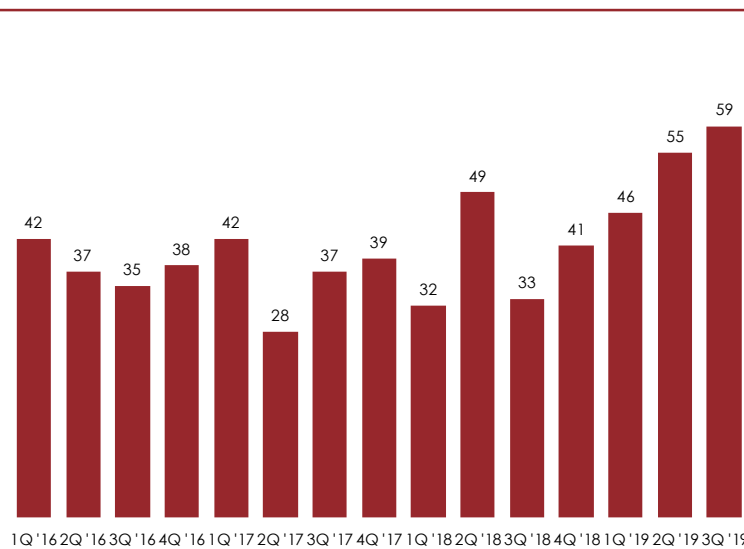
(# of Platform Transactions)



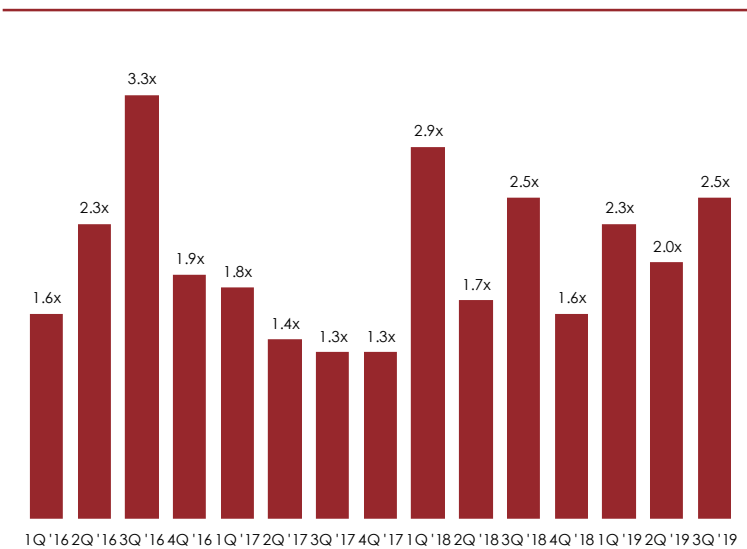
Note: Includes control investments only.

ONLINE MARKETING – M&A MARKET SUMMARY

ONLINE MARKETING M&A VOLUME² (GLOBAL)



MEDIAN M&A REVENUE MULTIPLES² (REPORTED)



- Online Marketing M&A increased in volume from the previous quarter.
- Median multiples increased 25% quarter-over-quarter rising above the historical mean.

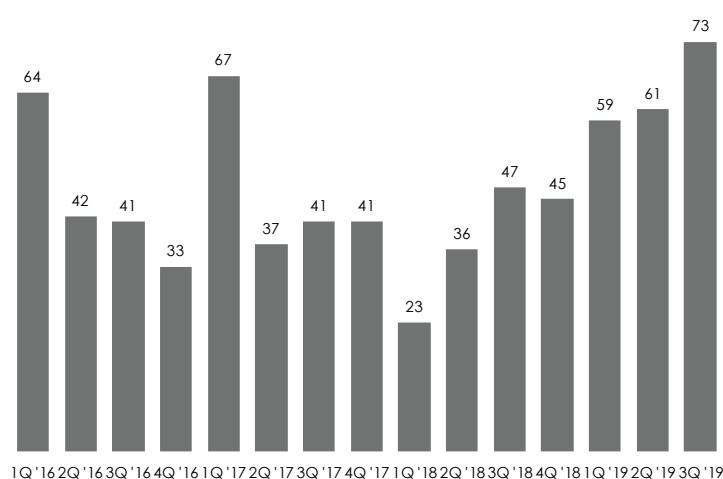
NOTABLE ONLINE MARKETING M&A TRANSACTIONS^{2,3}

- Microsoft's acquisition of PromoteIQ adds greater marketing technology capabilities to Microsoft's offering and enables it to better serve customers as they expand their eCommerce business.
- Providence's acquisition of Chatmeter highlights private equity investors' desire to invest in businesses that have strong growth prospects and unique offering that could be lucrative when exiting the business.

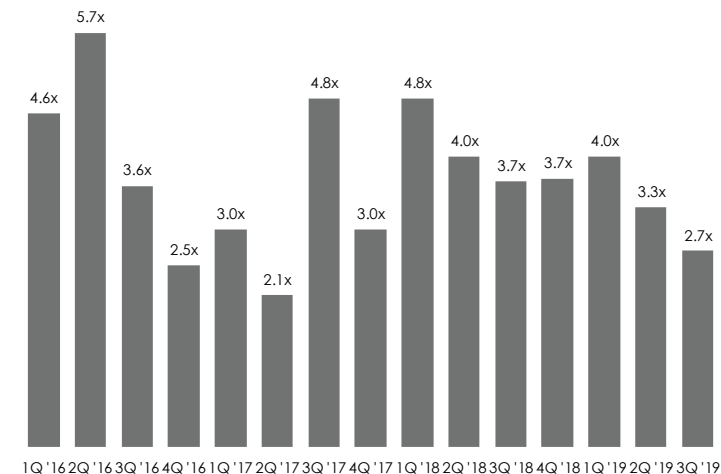
DATE CLOSED	ACQUIRER	TARGET	DESCRIPTION	ENTERPRISE VALUE (MM)	REVENUE MULTIPLE
Online Marketing					
Pending	Vista Equity Partners	Acquia	Provider of a cloud-based content management platform designed to optimize digital experiences.	\$1,000	NA
Pending	Taboola	Outbrain	Provider of a video content discovery platform created to grow online customer traffic.	\$850	NA
Pending	Innocean Worldwide	Wellcom Group	Provider of advertising and marketing content production and management services.	\$264	NA
Pending	Giant Partners	Worxstudio	Provider of web development, marketing strategy, and search engine optimisation services.	NA	NA
9/30/2019	The Blackstone Group	Vungle	Provider of a performance marketing platform intended for in-app video advertisements.	NA	NA
9/25/2019	Temenos	Kony	Provider of enterprise applications designed to help businesses better engage with their customers.	\$580	NA
9/19/2019	Rokt	OfferLogic	Provider of post-click marketing automation services.	NA	NA
9/04/2019	Dentsu Aegis Network	MuteSix	Provider of direct-to-consumer marketing services.	NA	NA
8/30/2019	NetWise Data	WhoToo	Provider of customer engagement platform to publishers and marketers.	NA	NA
8/22/2019	Roper Technologies	iPipeline	Provider of a cloud-based software platform designed for sales distribution.	\$1,625	NA
8/20/2019	Req	Internet Marketing	Provider of social media marketing, content marketing, and social advertising services.	NA	NA
8/06/2019	Microsoft	PromoteIQ	Provider of an automated vendor marketing platform.	NA	NA
7/09/2019	Providence Equity Partners	Chatmeter	Provider of a local brand management platform designed to provide reputation and local SEO analytics.	NA	NA
7/09/2019	Norwest Venture Partners	Clarus Commerce	Provider of marketing loyalty programs through a proprietary internet service platform.	NA	NA
7/08/2019	InComm (The Blackstone Group)	Meridian Loyalty	Provider of full-service loyalty and engagement programs for large corporations.	NA	NA
MEDIAN				\$850	NA

DATA ANALYTICS – M&A MARKET SUMMARY

DATA AND ANALYTICS M&A VOLUME¹ (GLOBAL)



MEDIAN M&A REVENUE MULTIPLES¹ (REPORTED)



- Data and Analytics M&A registered 73 transactions in 3Q 2019, an increase from the prior quarter.
- Median reported Data and Analytics transaction multiples decreased slightly to 2.7x in 3Q 2019.

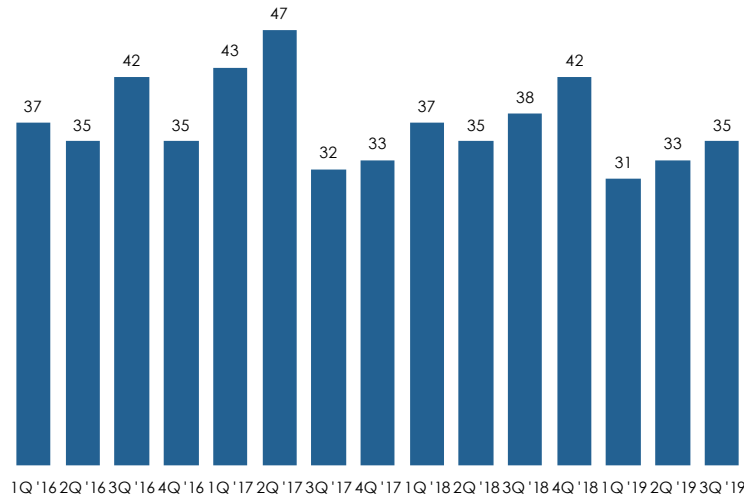
NOTABLE DATA AND ANALYTICS M&A TRANSACTIONS¹

- Data and Analytics remained a key focus area for enterprises in 3Q 2019 as companies increasingly seek data-driven insights and visibility to support critical decision-making.
- Notable 3Q 2019 Data and Analytics transactions include Cisco's pending acquisition of CloudCherry, Salesforce's acquisition of Tableau, and Publicis' acquisition of Epsilon Data Management.

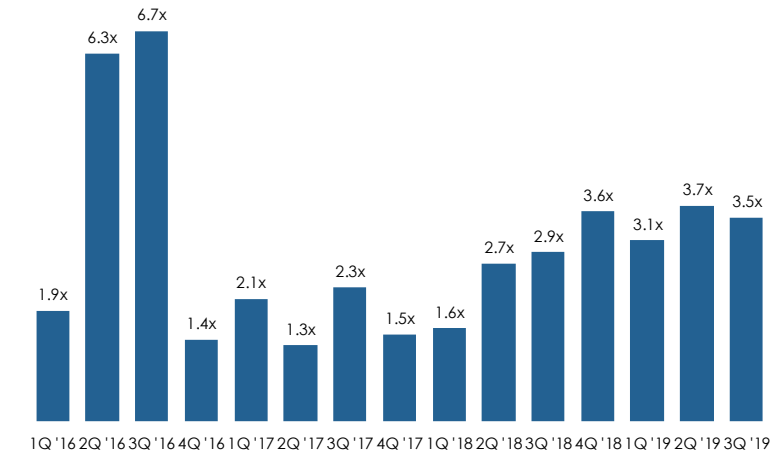
DATE CLOSED	ACQUIRER	TARGET	DESCRIPTION	ENTERPRISE VALUE (MM)	REVENUE MULTIPLE
Data Analytics					
Pending	Wood Mackenzie (Verisk)	Genscape	Provider of real-time data and intelligence for the commodity and energy markets.	\$364	NA
Pending	Cisco Systems	CloudCherry	Provider of customer intelligence and tracking software.	NA	NA
9/28/2019	Sage	Ocrex	Provider of optical character recognition software to automate data entry.	NA	NA
9/16/2019	Spectrum Equity	Datassential	Provider of data, intelligence, and market research for the food service industry.	NA	NA
9/11/2019	KKR	Burning Glass Technologies	Provider of resume parsing, job matching, and real-time labor market analytics software.	NA	NA
9/10/2019	Apax Digital	MetaMetrics	Provider of data solutions to measure and scale reading, listening, and math levels for students.	NA	NA
9/06/2019	Valence Media	Nielsen (Music-Industry Data Unit)	Provider of data and analytics software for the music industry.	NA	NA
8/30/2019	Accenture	Analytics8	Provider of data management, reporting and visualization, data science, and analytics solutions.	NA	NA
8/29/2019	Banneker Partners	Dairy	Provider of data management platform for dairy industry businesses.	NA	NA
8/26/2019	Syncsort	Pitney Bowes (Software Solutions Unit)	Provider of data quality and management software solutions.	\$700	NA
8/21/2019	Syncsort	SQData	Provider of enterprise-class data integration software.	NA	NA
8/13/2019	Battery Ventures	Forest2Market	Provider of data, analytics, and supply chain solutions to the global forest products industry.	NA	NA
8/12/2019	Syndigo (The Jordan Company)	Sellpoints	Provider of an information platform for brands to optimize their eCommerce strategy.	NA	NA
8/06/2019	NIKE	Celect	Provider of a predictive analytics and inventory optimization platform.	NA	NA
7/31/2019	Salesforce	Tableau Software	Provider of a self-service data analytics platform.	\$16,322	NA
MEDIAN				\$700	NA

E-COMMERCE – M&A MARKET SUMMARY

ECOMMERCE M&A VOLUME² (GLOBAL)



MEDIAN M&A REVENUE MULTIPLES² (REPORTED)



- eCommerce M&A volume in 3Q 2019 remained relatively flat at 35 deals.
- The median of the reported multiples for 3Q 2019 decreased slightly to 3.5x.

NOTABLE E-COMMERCE M&A TRANSACTIONS²

- DoorDash's acquisition of Caviar highlights the wave of consolidation that is occurring between competitors in eCommerce. To become more efficient and profitable businesses are scaling their operations through acquisitions.
- Through its purchase of Messagera, Groupon hopes to improve user engagement, which, in turn, would improve usage metrics and revenue generated by each user.

DATE CLOSED	ACQUIRER	TARGET	DESCRIPTION	ENTERPRISE VALUE (MM)	REVENUE MULTIPLE
eCommerce					
Pending	DoorDash	Caviar	Provider of an online delivery application intended to order food from local eateries.	\$410	NA
Pending	Takeaway.com	Just Eat	Provider of online food ordering services.	\$5,181	NA
Pending	Vacasa	Wyndham Vacation Rentals	Provider of self-catering holiday platform in the United Kingdom.	\$162	NA
Pending	The Riverside Company	Bike24	Provider of an online biking retail store.	NA	NA
Pending	Vista Equity Partners	Monetate	Provider of a cloud-based platform intended to offer innovative eCommerce strategy.	NA	NA
9/18/2019	Blue Acorn	Mediotype	Provider of digital eCommerce services	NA	NA
9/16/2019	Alibaba	Kaola	Provider of a cross-border eCommerce shopping portal.	\$2,000	NA
9/12/2019	Summit Partners	Akeneo	Provider of online product management platform designed to manage.	NA	NA
8/21/2019	Etsy	Reverb	Provider of an online marketplace designed for new, used, and vintage music gear.	\$275	NA
8/08/2019	Groupon	Messagera	Provider of communications platform allowing online retailers to connect with their customers.	NA	NA
8/07/2019	PWP Growth Equity	TickPick	Provider of an online ticketing marketplace to buy and sell tickets.	NA	NA
8/06/2019	Airbnb	Urbandoor	Provider of a housing and accommodation booking platform.	NA	NA
7/24/2019	Otimo Retail	XC Commerce	Provider of a cross-channel promotion and coupon management suite of products.	NA	NA
7/17/2019	Ebix	Yatra	Provider of an Indian consumer travel platform and online travel agent.	NA	NA
7/11/2019	Coveo	Tooso	Provider of a SaaS-based search and discovery platform.	NA	NA
MEDIAN				\$410	NA

SELECT RECENT IDM PRIVATE PLACEMENTS^{1,2}

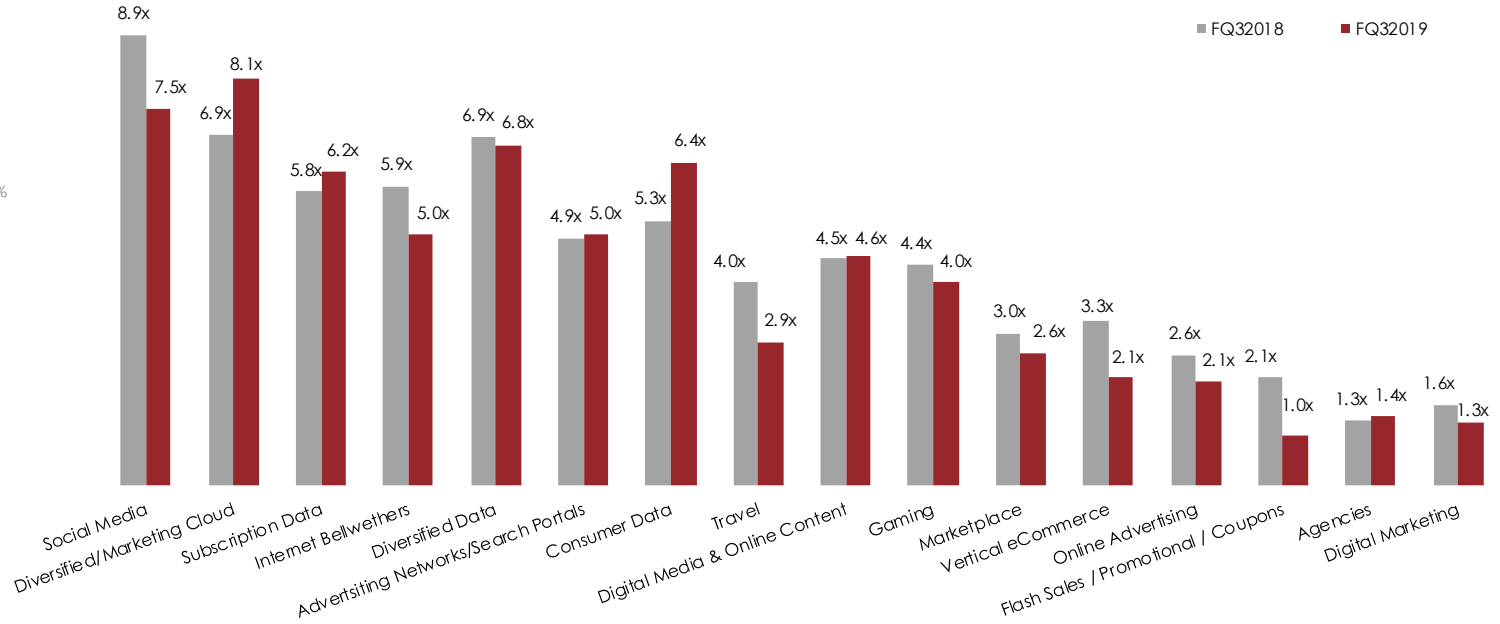
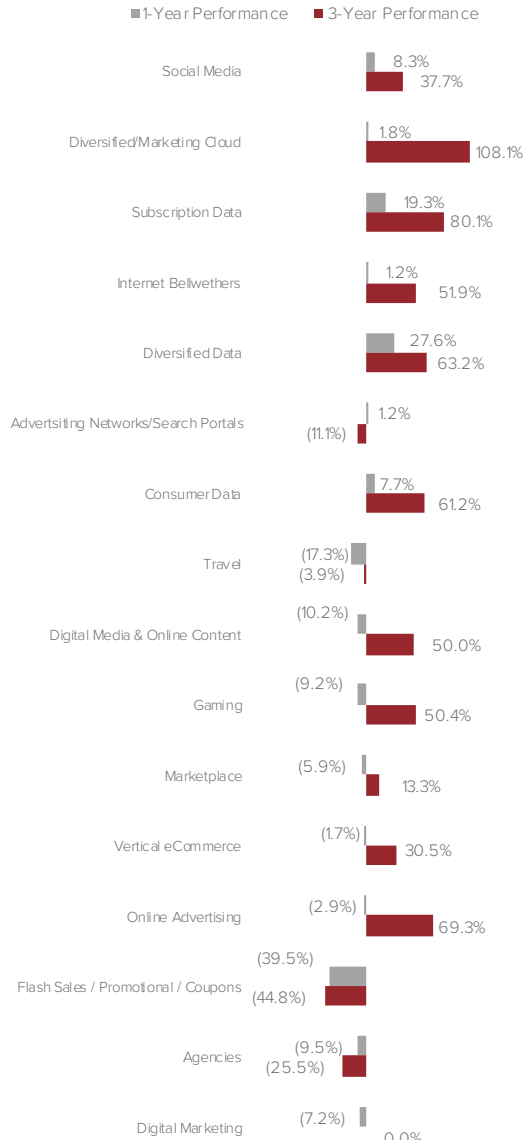
DATE	COMPANY	SECTOR	ROUND	ROUND SIZE (\$MM)	TOTAL RAISED (\$MM)	INVESTORS (CURRENT ROUND)	DESCRIPTION
9/26/19	booksy	eCommerce	B	\$29	\$49	Industry Ventures, Piton Capital, XG Ventures	Provider of a cloud-based platform designed to schedule appointments for beauty services.
9/24/19	Splio	Online Marketing	Late Stage	\$11	\$22	Ring Capital, Swen Capital Partners, BPI France and Amundi PEF	Provider of a customer platform for marketers.
9/10/19	Swiftly	Online Marketing	Seed	\$16	\$31	Novel Private Equity, Mendacre and other private investors	Provider of a technology platform for supermarkets, helping brick-and-mortar stores reach their customers through features traditionally associated with e-commerce.
9/5/19	GROVE collaborative	eCommerce	D	\$150	\$1,000	Norwest Venture Partners, General Atlantic, NextView Partners	Provider of a household product marketplace.
8/27/19	ENJOY	eCommerce	C	\$150	\$373	L Catterton, Riverwood Capital, TriplePoint Capital Growth	Provider of a personal eCommerce platform for electronic products and gadgets.
8/24/19	ThoughtSpot	Data Analytics	E	\$248	\$557	Lightspeed Venture Partners, Silver Lake Management, Geodesic Capital and Sapphire Ventures	Provider of a next-generation enterprise analytics platform designed to easily analyze complex, large-scale enterprise data with an automatic, relational search engine.
8/21/19	THREDUP	eCommerce	F	\$175	\$338	Irving Investors, Park West Asset Management, Redpoint Ventures, Highland Capital Partners, Upfront Ventures, DG Incubation and Goldman Sachs Investment Partners	Provider of an online clothing retail platform designed to offer thrift shopping online.
8/5/19	scale	Data Analytics	C	\$100	\$123	Founders Fund, Spark Capital, Thrive Capital, Accel, Index Ventures (UK) and Coatue Management	Provider of an interface platform intended to annotate a wide range of data from images to LIDAR and RADAR data, to text, for training artificial intelligence applications.
8/1/19	wish	Data Analytics	H	\$300	\$1,800	General Atlantic, Reform Ventures and Manhattan Venture Partners and 137 Ventures	Provider of a mobile e-commerce platform designed to sell items directly from the manufacturer.
7/30/19	COMPASS	eCommerce	G	\$370	\$1,480	SoftBank Investment Advisers, Alumni Ventures Group, Dragoneer Investment Group and Canada Pension Plan Investment Board	Provider of a real estate platform used for selling, buying or renting a property.
7/30/19	HIPCAMPA	Online Marketing	Late Stage	\$25	\$127	Andreessen Horowitz, August Capital, Marcy Venture Partners	Provider of an online travel service platform to help book camping experiences.
7/17/19	TURO	eCommerce	E	\$250	\$450	IAC/InterActiveCorp	Provider of an online car rental marketplace that enables local car owners to list their cars and travelers to rent them for local pickup, city delivery, and airport delivery.
7/17/19	AlphaSense	Data Analytics	B	\$50	\$87	Innovation Endeavors, Soros Fund Management and undisclosed investors	Provider of a financial search engine designed to find critical information.
7/13/19	Lightricks	eCommerce	C	\$135	\$205	Goldman Sachs Private Capital, Insight Partners and ClaiTech	Provider of subscription-based content creation apps Facetune and Enlight.

Note: Financial information presented above represents reported capital raised only.

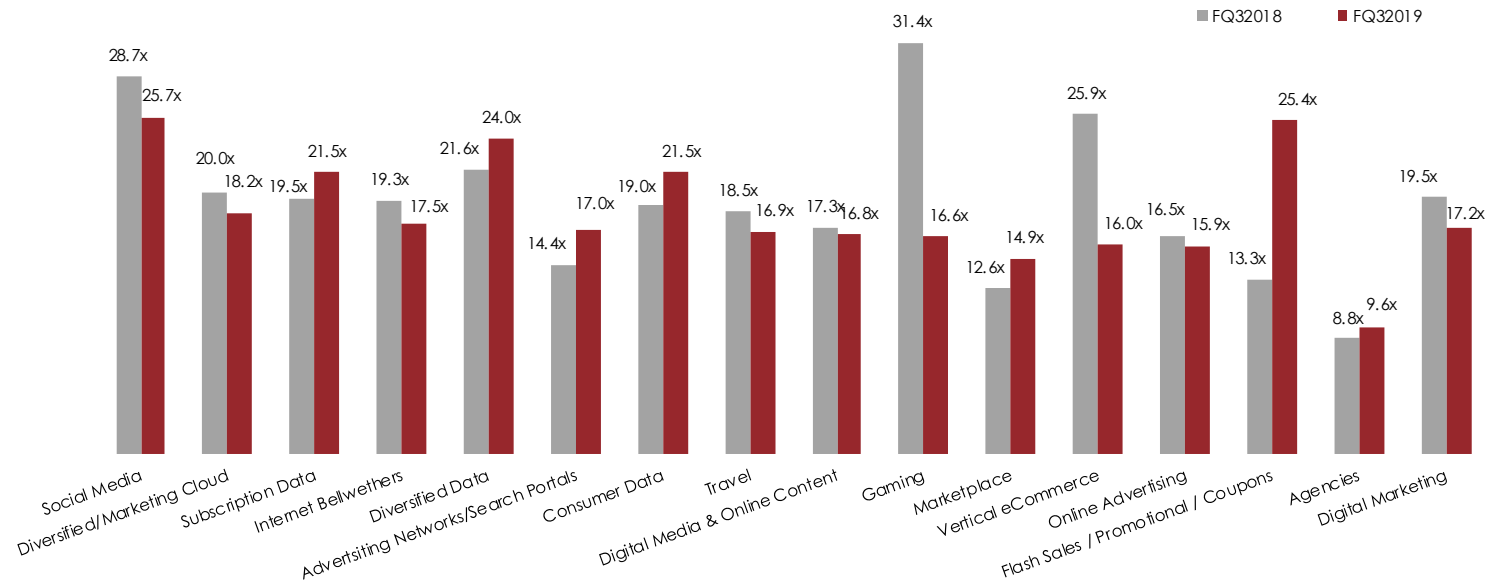
PUBLIC IDM VALUATION MULTIPLES BY SECTOR²

STOCK PERFORMANCE (1- & 3-YEAR)

REVENUE MULTIPLE COMPARISON 3Q 2018 VS. 3Q 2019



EBITDA MULTIPLE COMPARISON 3Q 2018 VS. 3Q 2019



SELECT HW TMT TRANSACTIONS

<p>TAILWIND CAPITAL acquired ventiv</p>	<p>hst Health & Safety Institute acquired by Waud Capital</p>	<p>CREDIBLE Advanced Health Network investment from MARTIS CAPITAL</p>	<p>ComputerEase acquired by Deltek</p>	<p>TISG pending acquisition by Advent International</p>	<p>cority acquired by THOMABRAVO</p>	<p>Practice Insight acquired by eSolutions</p>	<p>Contracts acquired by Datix</p>	<p>liveauctioneers controlling investment from COVE HILL PARTNERS</p>	<p>FRONTSTEPS acquired CALIBER SOFTWARE</p>	<p>VERIFORCE acquired by pec</p>	<p>THOMABRAVO acquired mailgun</p>	<p>payit strategic investment from INSIGHT PARTNERS</p>	<p>zoominfo acquired by DiscoverOrg</p>	<p>Hg acquired combell.group</p>
<p>IQMS acquired by DASSAULT SYSTEMES</p>	<p>V VISTA acquired Wrike</p>	<p>Trafficware acquired by CUBIC</p>	<p>MMIT acquired by WCAS</p>	<p>RESEARCH CAPITAL acquired sympir</p>	<p>OnCourse Learning acquired by BERTELSMANN</p>	<p>THERAPYBRANDS acquired by LIGHTYEAR CAPITAL & OAK HC/FT</p>	<p>MAYFAIR EQUITY PARTNERS acquired PIXOMONDO</p>	<p>io education acquired by illuminate education</p>	<p>drillinginfo acquired by GENSTAR</p>	<p>GLOBALTRANZ acquired by THE JORDAN COMPANY</p>	<p>Hg acquired Relation</p>	<p>caradigm a wholly-owned affiliate of GE Healthcare acquired by imprivata & inspirata</p>	<p>TA ASSOCIATES invested in Datix</p>	<p>access majority investment from Hg</p>
<p>TOGETHER WORK acquired by GI PARTNERS</p>	<p>EXOS acquired by BDT CAPITAL PARTNERS</p>	<p>getwell network acquired by PAMPLONA CAPITAL MANAGEMENT</p>	<p>OMNICLAIM acquired by EQUIAN</p>	<p>tv Court acquired by PROVIDENCEEQUITY & GSV</p>	<p>PROPERTYBRANDS investment from INSIGHT PARTNERS</p>	<p>RESEARCH CAPITAL acquired PERFORCE</p>	<p>DIGITAL ROOM INC. acquired by L I C CAPITAL</p>	<p>SSI merged with research now</p>	<p>Precision Nutrition investment from bv</p>	<p>BlueCielo acquired by accruent</p>	<p>ONEPATH acquired by MSOUTH EQUITY PARTNERS</p>	<p>prospitalia acquired Healthlogistics</p>	<p>CALERO acquired by Riverside PARTNERS</p>	<p>receipt bank investment from INSIGHT PARTNERS</p>
<p>GAMESPARKS acquired by amazon</p>	<p>zitcom acquired by intelligent</p>	<p>MarketTrack acquired by Vista Equity Partners</p>	<p>comverge acquired by Itron</p>	<p>Ministry Brands acquired abila</p>	<p>BLUE STAR SPORTS majority investment from GENSTAR</p>	<p>VESON NAUTICAL growth investment from PAMLICO CAPITAL</p>	<p>youmembership acquired by Ministry Brands</p>	<p>Ministry Brands majority investment from INSIGHT PARTNERS</p>	<p>LEISURE PASS GROUP acquired by exponent</p>	<p>exocad majority investment from THE CARLYLE GROUP</p>	<p>daxko recapitalized by GI PARTNERS</p>	<p>wellcentive acquired by PHILIPS</p>	<p>HEARST acquired MedHOK'S</p>	<p>WORKPLACE acquired by WorkForce SOFTWARE</p>
<p>clearlink acquired by SYKES</p>	<p>inventus acquired by RPX RATIONAL PATENT</p>	<p>Ministry Brands recapitalized by GENSTAR</p>	<p>helpsystems acquired by H I G CAPITAL</p>	<p>knowledge acquired by BIOCLINICA</p>	<p>The Mill acquired by technicolor</p>	<p>COMMUNITY acquired by CIP CAPITAL</p>	<p>acquired by ParkerGale</p>	<p>IS acquired by kpn</p>	<p>DMEautomotive acquired by SoLera</p>	<p>SoftWriters acquired by ROPER</p>	<p>TA ASSOCIATES acquired a majority stake in access</p>	<p>Logibec acquired by GI PARTNERS</p>	<p>SSI majority investment from HGGC</p>	<p>TENDAIL minority investment from SUNPOWER</p>
<p>MicroEdge acquired by blackbaud</p>	<p>Capario acquired by emdeon</p>	<p>talent PARTNERS acquired by THE CARLYLE GROUP</p>	<p>PRODEGE strategic investment from TCV</p>	<p>HighJump merged with Accellos</p>	<p>ORSYP acquired by Automic</p>	<p>ECI Software Solutions acquired by THE CARLYLE GROUP</p>	<p>homecare acquired by HEARST</p>	<p>CATALINA HEALTH acquired by inVentiv Health</p>	<p>CareLearn acquired by RELIAS LEARNING</p>	<p>JAWOOD acquired by GENPACT</p>	<p>SIERRA TRADING POST acquired by DX</p>	<p>LIQUENT acquired by PAREXEL</p>	<p>CCC INFORMATION SERVICES INC. acquired by G&B</p>	<p>care Guidelines acquired by HEARST</p>
<p>SILVERCHAIR acquired by Vista Equity Partners</p>	<p>helpsystems acquired by SUMMIT PARTNERS</p>	<p>WIRB acquired by Artemis Capital Partners</p>	<p>12 SYSTEMS majority recapitalization by PAMLICO CAPITAL</p>	<p>afs recapitalized by Goldman Sachs</p>	<p>MANATRON acquired by THOMSON REUTERS</p>	<p>The Mill acquired by EQUISTONE</p>	<p>TRIZETTO acquired gateway</p>	<p>EQUATERRA acquired by KPMG</p>	<p>InSiteOne acquired by DELL</p>	<p>TRITECH acquired by F I L</p>	<p>ECI Software Solutions significant equity investment from Goldman Sachs</p>	<p>AGDATA acquired by SFW CAPITAL PARTNERS</p>	<p>MedData acquired by TransUnion</p>	<p>navicure minority investment from JMI EQUITY</p>

APPENDIX: IDM SECTOR PUBLIC COMPANY UNIVERSE²

Internet Bellwethers	Alphabet	Amazon.com	Facebook
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Diversified / Marketing Cloud	Microsoft	Oracle	IBM	SAP	Adobe	salesforce.com	HubSpot
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Agencies	WPP	Omnicom Group	Publicis Groupe	Dentsu	Interpublic Group
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Online Advertising	GoDaddy	Wix.com	Endurance International	Tucows	Marchex
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Advertising Networks / Search Portals	Alphabet	Baidu	Yahoo (Z Holdings)	NAVER	Yandex
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Consumer Data	Experian	Nielsen	Equifax	Alliance Data	TransUnion	Fair Isaac	LiveRamp Holdings
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Diversified Data	Thomson Reuters	IHS Markit	Verisk Analytics	Infoma
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Subscription Data	S&P Global	Moody's	Wolters Kluwer	Gartner	MSCI	FactSet	Morningstar	Forrester
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Marketplace	Amazon.com	Alibaba Group	JD.com	eBay	Rakuten	Qurate Retail	MercadoLibre	Shopify	58.com	Wayfair
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Marketplace (cont'd)	LendingClub	Overstock.com
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Travel	Booking Holdings	Trip.com	Expedia	TripAdvisor	MakeMyTrip	Trivago	Travelzoo
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Flash Sales / Promotional / Coupons	Groupon	Quotient Technology
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Vertical eCommerce	GrubHub	Cimpres	Stamps.com	Etsy	Shutterfly	Chegg	Shutterstock	PetMed Express	1-800-FLOWERS.COM	eHealth
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Digital Media & Online Content	Tencent	Netflix	Sirius XM	IAC	Pandora	SINA	TechTarget	Leaf Group	Townsquare Media
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Social Media	Facebook	Twitter	Snapchat	Weibo	Momo	Match Group	Spark
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Gaming	Nintendo Co.	Activision Blizzard	NetEase	Electronic Arts	Take-Two Interactive	Ubisoft Entertainment	Zynga	GREE	Glu Mobile
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APPENDIX: IDM SECTOR PUBLIC COMPANY METRICS²

Company	Ticker	Enterprise	Market	% of 52	1-Year Stock	3-Year Stock	Revenue Growth		LTM EBITDA	Enterprise Value /			Price /
		Value	Capitalization	Week High	Performance	Performance	LTM	NTM	Margin	LTM Rev.	NTM Rev.	LTM EBITDA	Earnings
Internet Bellwethers													
Amazon.com, Inc.	AMZN	\$888,829	\$858,678	85.3%	(13.3%)	107.3%	21%	20.4%	13.1%	3.5x	2.9x	26.8x	72.0x
Alphabet Inc.	GOOGL	739,163	845,993	94.2%	1.2%	51.9%	19.7%	18.7%	29.3%	5.0x	4.2x	17.0x	24.7x
Facebook, Inc.	FB	467,848	508,053	85.3%	8.3%	38.8%	29.1%	23.5%	42.7%	7.5x	6.1x	17.5x	30.1x
Median		\$739,163	\$845,993	85.3%	1.2%	51.9%	21.1%	20.4%	29.3%	5.0x	4.2x	17.5x	30.1x
Diversified/Marketing Cloud													
Microsoft Corporation	MSFT	\$1,014,174	\$1,061,551	97.7%	21.6%	141.4%	14.0%	11.3%	43.4%	8.1x	7.2x	18.6x	27.5x
Oracle Corporation	ORCL	206,124	180,637	91.0%	6.7%	40.1%	0.1%	2.1%	40.9%	5.2x	5.1x	12.7x	18.0x
International Business Machines Corporation	IBM	160,982	128,824	94.2%	(3.8%)	(8.5%)	(3.6%)	1.8%	22.1%	2.1x	2.0x	9.4x	15.0x
SAP SE	SAP	136,381	140,411	86.3%	1.8%	33.3%	11.8%	5.6%	25.4%	4.6x	4.4x	18.2x	41.4x
Adobe Inc.	ADBE	134,213	133,727	88.2%	2.3%	154.5%	24.2%	18.4%	33.5%	12.6x	10.6x	37.6x	NM
salesforce.com, inc.	CRM	131,896	129,937	88.6%	(6.7%)	108.1%	24.3%	29.3%	14.0%	9.0x	6.9x	NM	NM
HubSpot, Inc.	HUBS	6,543	6,443	72.9%	0.4%	163.1%	33.9%	25.6%	NM	11.1x	8.8x	NM	NM
Median		\$136,381	\$133,727	88.6%	1.8%	108.1%	14.0%	11.3%	29.5%	8.1x	6.9x	18.2x	22.7x
Agencies													
Omnicom Group Inc.	OMC	\$22,212	\$17,032	92.1%	15.1%	(7.9%)	(2.6%)	0.5%	15.5%	1.5x	1.5x	9.6x	13.1x
WPP plc	WPP	24,436	15,801	87.9%	(9.5%)	(43.9%)	0.5%	(22.6%)	10.5%	1.2x	1.6x	11.6x	18.3x
Publicis Groupe S.A.	ENXTPA:PUB	14,284	11,658	79.9%	(12.4%)	(33.0%)	2.0%	9.4%	19.8%	1.4x	1.3x	7.0x	11.0x
The Interpublic Group of Companies, Inc.	IPG	13,472	8,349	85.9%	(5.7%)	(3.5%)	9.8%	4.6%	16.0%	1.6x	1.5x	9.9x	13.0x
Dentsu Inc.	4324	12,718	9,923	66.6%	(27.8%)	(25.5%)	6.5%	5.2%	15.9%	1.3x	1.3x	8.3x	13.7x
Median		\$14,284	\$11,658	85.9%	(9.5%)	(25.5%)	2.0%	4.6%	15.9%	1.4x	1.5x	9.6x	13.1x
Online Advertising													
GoDaddy Inc.	GDDY	\$13,459	\$11,676	77.7%	(20.9%)	91.1%	14.3%	11.7%	11.9%	4.8x	4.3x	40.1x	NM
Wix.com Ltd.	WIX	5,631	5,971	75.0%	(2.5%)	168.8%	32.3%	26.0%	NM	8.3x	6.6x	NM	NM
Endurance International Group Holdings, Inc.	EIGI	2,332	548	37.3%	(57.4%)	(57.1%)	(3.7%)	(0.3%)	25.7%	2.1x	2.1x	8.1x	NM
Tucows Inc.	TCX	683	578	60.0%	(2.9%)	69.3%	(5.8%)	7.8%	13.0%	2.1x	1.9x	15.9x	38.4x
Marchex, Inc.	MCHX	90	133	56.4%	12.9%	13.4%	11.5%	6.0%	0.7%	0.9x	0.9x	NM	NM
Median		\$2,332	\$578	60.0%	(2.9%)	69.3%	11.5%	7.8%	12.4%	2.1x	2.1x	15.9x	38.4x

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APPENDIX: IDM SECTOR PUBLIC COMPANY METRICS (CONT'D) ²

Company	Ticker	Enterprise	Market	% of 52	1-Year Stock	3-Year Stock	Revenue Growth		LTM EBITDA	Enterprise Value /			Price /
		Value	Capitalization	Week High	Performance	Performance	LTM	NTM	Margin	LTM Rev.	NTM Rev.	LTM EBITDA	Earnings
Advertising Networks/Search Portals													
Alphabet Inc.	GOOGL	\$739,163	\$845,993	94.2%	1.2%	51.9%	19.7%	18.7%	29.3%	5.0x	4.2x	17.0x	24.7x
NAVER Corporation	A035420	30,255	19,050	98.4%	9.6%	(11.1%)	17.8%	13.0%	17.4%	5.8x	5.1x	33.2x	53.7x
Baidu, Inc.	BIDU	28,553	35,816	44.5%	(55.1%)	(43.6%)	11.2%	0.9%	22.4%	1.8x	1.8x	8.1x	15.0x
Yandex N.V.	YNDX	23,234	11,445	82.6%	6.4%	66.3%	39.6%	31.8%	25.5%	9.8x	7.4x	38.2x	38.5x
Z Holdings Corporation	4689	13,290	13,478	73.3%	(25.7%)	(24.4%)	4.9%	4.6%	20.1%	1.5x	1.4x	7.4x	21.5x
Median		\$28,553	\$19,050	82.6%	1.2%	(11.1%)	17.8%	13.0%	22.4%	5.0x	4.2x	17.0x	24.7x
Consumer Data													
Experian plc	EXPN	\$31,945	\$28,798	98.4%	31.9%	68.3%	6.0%	6.9%	31.0%	6.6x	6.1x	212x	44.5x
Alliance Data Systems Corporation	ADS	27,280	5,900	53.2%	(45.7%)	(40.3%)	13.2%	(22.1%)	23.1%	3.5x	4.6x	15.3x	7.8x
Equifax Inc.	EFX	19,946	17,005	94.7%	7.7%	4.5%	(0.6%)	5.4%	19.8%	5.9x	5.6x	29.6x	NM
TransUnion	TRU	19,364	15,232	94.9%	10.2%	135.1%	18.7%	10.0%	35.6%	7.8x	7.1x	218x	47.2x
Nielsen Holdings plc	NLSN	16,560	7,558	74.6%	(23.2%)	(60.3%)	(3.2%)	1.4%	21.9%	2.6x	2.5x	11.7x	NM
Fair Isaac Corporation	FICO	9,727	8,771	81.3%	32.8%	143.6%	14.7%	7.2%	25.5%	8.5x	7.9x	33.4x	NM
LiveRamp Holdings, Inc.	RAMP	1,962	2,906	67.9%	(13.1%)	61.2%	29.6%	30.7%	NM	6.4x	4.9x	NM	NM
Median		\$19,364	\$8,771	81.3%	7.7%	61.2%	13.2%	6.9%	24.3%	6.4x	5.6x	21.5x	44.5x
Diversified Data													
Thomson Reuters Corporation	TSX:TRI	\$35,097	\$33,522	93.9%	36.4%	48.2%	6.4%	6.4%	18.2%	6.1x	5.8x	33.6x	NM
IHS Markit Ltd.	INFO	32,305	26,818	97.1%	23.9%	78.1%	12.2%	4.9%	34.4%	7.4x	7.1x	21.5x	NM
Verisk Analytics, Inc.	VRSK	28,937	25,857	95.9%	31.2%	94.6%	8.2%	8.3%	43.9%	11.6x	10.7x	26.5x	44.3x
Informa plc	INF	16,831	13,117	94.6%	11.8%	19.7%	56.8%	0.1%	31.5%	4.7x	4.7x	14.9x	35.3x
Median		\$30,621	\$26,337	95.2%	27.6%	63.2%	10.2%	5.7%	33.0%	6.8x	6.4x	24.0x	39.8x
Subscription Data													
S&P Global Inc.	SPGI	\$64,800	\$60,339	90.9%	25.4%	93.6%	1.3%	7.2%	49.5%	10.2x	9.5x	20.6x	31x
Moody's Corporation	MCO	43,944	38,754	91.9%	22.5%	89.2%	(0.7%)	7.1%	46.8%	9.8x	9.1x	20.9x	31.8x
Wolters Kluwer N.V.	WKL	21,747	19,202	98.9%	24.8%	75.8%	5.4%	0.7%	27.3%	4.3x	4.3x	15.7x	30.8x
MSCI Inc.	MSCI	20,458	18,443	88.0%	22.7%	159.4%	7.7%	9.1%	52.0%	13.9x	12.7x	26.7x	32.5x
Gartner, Inc.	IT	15,812	12,889	83.2%	(9.8%)	61.7%	6.4%	9.4%	14.6%	3.9x	3.6x	26.8x	NM
FactSet Research Systems Inc.	FDS	9,701	9,295	79.6%	8.6%	49.9%	6.3%	4.1%	34.7%	6.8x	6.5x	19.5x	26.8x
Morningstar, Inc.	MORN	5,993	6,249	89.9%	16.1%	84.4%	9.1%	(100.0%)	25.7%	5.7x	NA	22.0x	36.1x
Forrester Research, Inc.	FORR	748	596	62.1%	(30.0%)	(17.4%)	19.6%	19.0%	7.8%	1.8x	1.5x	23.2x	NM
Median		\$18,135	\$15,666	88.9%	19.3%	80.1%	6.4%	7.1%	31.0%	6.2x	6.5x	21.5x	31.5x

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APPENDIX: IDM SECTOR PUBLIC COMPANY METRICS (CONT'D) 2

Company	Ticker	Enterprise	Market	% of 52	1-Year Stock	3-Year Stock	Revenue Growth		LTM EBITDA	Enterprise Value /			Price /	
		Value	Capitalization	Week High	Performance	Performance	LTM	NTM	Margin	LTM Rev.	NTM Rev.	LTM EBITDA	Earnings	
Marketplace														
Amazon.com, Inc.	AMZN	\$888,829	\$858,678	85.3%	(13.3%)	107.3%	21%	20.4%	13.1%	3.5x	2.9x	26.8x	72.0x	Internet Bellwethers
Alibaba Group Holding Limited	BABA	441,297	435,395	85.4%	1.5%	58.1%	46.2%	27.3%	28.6%	7.4x	5.8x	25.8x	30.1x	Diversified / Marketing Cloud
eBay Inc.	EBAY	38,216	32,695	92.8%	18.0%	18.5%	4.1%	1.1%	28.9%	3.5x	3.5x	12.2x	15.0x	
JD.com, Inc.	JD	38,026	41,155	87.1%	8.1%	8.1%	22.7%	13.9%	14%	0.5x	0.4x	36.8x	NM	
Shopify Inc.	SHOP	35,168	35,943	76.1%	89.5%	626.1%	51.9%	36.9%	NM	27.1x	19.8x	NM	NM	
MercadoLibre, Inc.	MELI	26,313	27,402	78.9%	61.9%	198.0%	36.6%	42.4%	2.3%	14.6x	10.3x	NM	NM	Agencies
Rakuten, Inc.	4755	15,983	13,340	81.1%	22.3%	(18.8%)	15.7%	12.1%	15.9%	1.5x	1.3x	9.2x	8.2x	
Qurate Retail, Inc.	QRTEA	11,896	4,306	41.2%	(53.6%)	NA	13.3%	(0.6%)	14.0%	0.9x	0.9x	6.2x	8.8x	
Wayfair Inc.	W	11,194	10,353	64.5%	(24.1%)	184.8%	40.6%	31.8%	NM	1.4x	1.1x	NM	NM	Online Advertising
58.com Inc.	WUBA	6,563	7,331	66.5%	(33.0%)	3.5%	26.4%	12.1%	21.0%	3.1x	2.8x	14.9x	8.5x	
LendingClub Corporation	LC	1,570	1,140	64.9%	(32.6%)	(57.7%)	(1.1%)	14.4%	NM	2.2x	1.9x	NM	NM	
Overstock.com, Inc.	OSTK	377	374	35.6%	(61.8%)	(30.9%)	(9.6%)	(4.4%)	NM	0.2x	0.2x	NM	NM	Advertising Networks/Search Portals
Median		\$21,148	\$20,371	77.5%	(5.9%)	13.3%	21.9%	14.2%	15.0%	2.6x	2.3x	14.9x	11.9x	
Travel														
Booking Holdings Inc.	BKNG	\$86,449	\$83,434	94.3%	(1.1%)	33.4%	7.6%	7.7%	38.4%	5.9x	5.4x	15.3x	21.6x	Consumer Data
Expedia Group, Inc.	EXPE	24,404	22,886	93.3%	3.0%	15.2%	8.7%	9.5%	12.0%	2.1x	1.9x	17.6x	33.1x	
Ctrip.com International, Ltd.	CTRP	18,688	17,235	63.0%	(21.2%)	(37.1%)	19.1%	11.7%	13.5%	3.8x	3.4x	28.2x	60.8x	Diversified Data
TripAdvisor, Inc.	TRIP	4,592	5,388	56.1%	(24.3%)	(38.8%)	2.0%	5.1%	16.5%	2.9x	2.7x	17.4x	39.5x	
MakeMyTrip Limited	MMYT	2,101	2,337	70.2%	(17.3%)	(3.9%)	(21.0%)	59.6%	NM	4.3x	2.7x	NM	NM	
trivago N.V.	TRVG	1,320	1,446	54.5%	(33.3%)	NA	(11.5%)	1.5%	8.3%	1.4x	1.3x	16.5x	36.6x	Subscription Data
Travelzoo	TZOO	130	125	46.8%	(9.8%)	(16.7%)	0.7%	5.0%	11.1%	1.2x	1.1x	10.6x	21.9x	
Median		\$4,592	\$5,388	63.0%	(17.3%)	(3.9%)	2.0%	7.7%	12.7%	2.9x	2.7x	16.9x	34.9x	
Flash Sales / Promotional / Coupons														
Groupon, Inc.	GRPN	\$1,296	\$1,510	66.5%	(29.4%)	(48.3%)	(9.0%)	(4.8%)	5.1%	0.5x	0.5x	10.1x	NM	Marketplace
Quotient Technology Inc.	QUOT	611	694	49.8%	(49.5%)	(41.2%)	17.7%	8.9%	3.6%	1.5x	1.4x	40.7x	NM	Travel
Median		\$954	\$1,102	58.2%	(39.5%)	(44.8%)	4.3%	2.0%	4.4%	1.0x	1.0x	25.4x	NM	
Vertical eCommerce														
Etsy, Inc.	ETSY	\$6,963	\$6,806	77.0%	10.0%	295.7%	41.3%	27.3%	18.4%	9.9x	7.8x	NM	NM	Flash Sales / Promotional / Coupons
Grubhub Inc.	GRUB	5,422	5,135	40.1%	(59.5%)	30.8%	40.9%	31.5%	9.7%	4.6x	3.5x	47.3x	NM	
Chegg, Inc.	CHGG	3,798	3,584	62.1%	5.3%	322.4%	25.7%	24.3%	8.4%	10.5x	8.5x	NM	NM	Vertical eCommerce
Cimpress N.V.	CMPR	5,164	3,779	94.9%	(3.5%)	30.3%	6.1%	3.6%	11.7%	1.9x	1.8x	16.0x	NM	
eHealth, Inc.	EHTH	1,486	1,523	59.5%	136.3%	495.8%	63.0%	30.2%	12.8%	4.8x	3.7x	37.3x	NM	
Shutterstock, Inc.	SSTK	1,072	1,275	65.0%	(33.8%)	(43.3%)	6.0%	5.4%	8.8%	1.7x	1.6x	19.1x	38.8x	Digital Media & Online Content
1-800-FLOWERS.COM, Inc.	FLWS	896	955	68.0%	25.4%	61.3%	8.4%	8.1%	6.1%	0.7x	0.7x	11.8x	28.5x	
Stamps.com Inc.	STMP	1,261	1,278	32.5%	(67.1%)	(21.2%)	13.0%	(11.2%)	29.6%	2.1x	2.4x	7.2x	12.9x	
PetMed Express, Inc.	PETS	277	361	54.0%	(45.4%)	(11.1%)	(2.0%)	0.5%	14.1%	1.0x	1.0x	7.1x	12.2x	Social Media
Median		\$1,486	\$1,523	62.1%	(3.5%)	30.8%	13.0%	8.1%	11.7%	2.1x	2.4x	16.0x	20.7x	

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APPENDIX: IDM SECTOR PUBLIC COMPANY METRICS (CONT'D) 2

Company	Ticker	Enterprise	Market	% of 52	1-Year Stock	3-Year Stock	Revenue Growth		LTM EBITDA	Enterprise Value /			Price /
		Value	Capitalization	Week High	Performance	Performance	LTM	NTM	Margin	LTM Rev.	NTM Rev.	LTM EBITDA	Earnings
Digital Media & Online Content													
Tencent Holdings Limited	700	409,637	399,949	82.5%	2.2%	55.0%	21.9%	19.9%	36.4%	8.3x	6.9x	22.7x	31.3x
Netflix, Inc.	NFLX	129,122	117,173	69.2%	(28.5%)	1716%	27.0%	28.7%	11.1%	7.3x	5.7x	NM	NM
Sirius XM Holdings Inc.	SIRI	36,417	27,834	96.1%	(10%)	50.0%	19.6%	20.0%	32.5%	5.4x	4.5x	16.8x	28.3x
IAC/InterActiveCorp	IAC	20,513	18,375	81.1%	0.6%	248.9%	17.4%	14.1%	17.8%	4.6x	4.0x	25.7x	38.6x
Pandora A/S	PNDORA	5,384	3,817	62.4%	(31.5%)	(65.7%)	(1.6%)	(7.5%)	30.9%	16x	1.7x	5.1x	6.8x
SINA Corporation	SINA	3,049	2,726	55.2%	(43.6%)	(46.9%)	11.1%	8.1%	25.2%	14x	1.3x	5.7x	19.1x
Townsquare Media, Inc.	TSQ	737	133	87.5%	(10.2%)	(24.7%)	10.3%	(1.1%)	22.5%	17x	1.7x	7.4x	NM
TechTarget, Inc.	TTGT	636	623	89.6%	16.0%	179.5%	8.3%	10.2%	17.9%	5.0x	4.5x	28.0x	47.0x
Leaf Group Ltd.	LEAF	109	109	40.7%	(58.0%)	(26.2%)	11.0%	8.1%	NM	0.7x	0.6x	NM	NM
Median		\$5,384	\$3,817	81.1%	(10.2%)	50.0%	11.1%	10.2%	23.9%	4.6x	4.0x	16.8x	29.8x
Social Media													
Facebook, Inc.	FB	\$467,848	\$508,053	85.3%	8.3%	38.8%	29.1%	23.5%	42.7%	7.5x	6.1x	17.5x	30.1x
Twitter, Inc.	TWTR	28,701	31,774	89.8%	44.8%	78.7%	22.2%	16.3%	24.7%	8.7x	7.5x	35.3x	13.6x
Match Group, Inc.	MTCH	22,567	20,073	74.9%	23.4%	3016%	20.2%	21.5%	33.0%	12.1x	10.0x	36.7x	42.6x
Snap Inc.	SNAP	20,967	21,793	86.1%	86.3%	NA	41.5%	41.2%	NM	15.0x	10.6x	NM	NM
Weibo Corporation	WB	9,416	10,070	59.9%	(38.8%)	(10.7%)	20.3%	7.5%	36.8%	5.3x	4.9x	14.4x	17.3x
Momo Inc.	MOMO	5,760	6,432	69.5%	(29.3%)	37.7%	39.9%	11.4%	20.0%	2.6x	2.3x	12.8x	20.4x
Spark Networks SE	LOV	197	144	31.4%	(51.5%)	NA	4.4%	89.6%	5.1%	1.7x	0.9x	33.8x	NM
Median		\$20,967	\$20,073	74.9%	8.3%	37.7%	22.2%	21.5%	28.8%	7.5x	6.1x	25.7x	20.4x
Gaming													
Activision Blizzard, Inc.	ATVI	\$39,109	\$40,591	62.5%	(36.4%)	19.5%	(2.1%)	(8.6%)	33.2%	5.5x	6.0x	16.6x	24.2x
Nintendo Co., Ltd.	7974	35,718	44,104	93.2%	(3.5%)	50.4%	12.6%	9.0%	21.3%	3.2x	2.9x	15.0x	26.6x
NetEase, Inc.	NTES	29,006	34,061	91.9%	16.6%	10.5%	28.3%	(11.3%)	18.6%	2.7x	3.0x	14.5x	27.0x
Electronic Arts Inc.	EA	24,962	28,828	80.6%	(18.8%)	14.5%	3.8%	5.0%	25.2%	5.0x	4.7x	19.7x	13.8x
Take-Two Interactive Software, Inc.	TTWO	12,030	13,425	89.6%	(9.2%)	178.0%	60.0%	(0.7%)	9.0%	4.3x	4.3x	47.2x	46.5x
Ubisoft Entertainment SA	ENXTPA:UBI	8,359	8,039	66.0%	(29.0%)	97.4%	6.6%	18.7%	13.3%	4.0x	3.4x	30.3x	NM
Zynga Inc.	ZNGA	5,323	5,480	87.5%	45.1%	100.0%	19.3%	31.6%	NM	5.1x	3.8x	NM	NM
Glu Mobile Inc.	GLUU	692	728	42.5%	(33.0%)	122.8%	16.0%	11.2%	3.1%	1.8x	1.6x	NM	NM
Gree, Inc.	3632	267	1,048	90.8%	(8.2%)	(12.9%)	(9.0%)	3.2%	9.0%	0.4x	0.4x	4.5x	33.3x
Median		\$12,030	\$13,425	87.5%	(9.2%)	50.4%	12.6%	5.0%	16.0%	4.0x	3.4x	16.6x	26.8x

Internet Bellwethers

Diversified / Marketing Cloud

Agencies

Online Advertising

Advertising Networks/Search Portals

Consumer Data

Diversified Data

Subscription Data

Marketplace

Travel

Flash Sales / Promotional / Coupons

Vertical eCommerce

Digital Media & Online Content

Social Media

Gaming

Note: Not Meaningful (NM) represents multiples above 50.0x; Not Available (NA) means the data is unavailable.

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HARRIS WILLIAMS OFFICE LOCATIONS

UNITED STATES

Boston

One International Place
Suite 2620
Boston, Massachusetts 02110
Phone: +1 (617) 482-7501

Cleveland

1900 East 9th Street
20th Floor
Cleveland, Ohio 44114
Phone: +1 (216) 689-2400

Minneapolis

222 South 9th Street
Suite 3350
Minneapolis, Minnesota 55402
Phone: +1 (612) 359-2700

Richmond (Headquarters)

1001 Haxall Point
9th Floor
Richmond, Virginia 23219
Phone: +1 (804) 648-0072

San Francisco

575 Market Street
31st Floor
San Francisco, California 94105
Phone: +1 (415) 288-4260

Washington, D.C.

800 17th St. NW
2nd Floor
Washington, D.C. 20006
Phone: +1 (202) 207-2300

EUROPE

Frankfurt

Bockenheimer Landstrasse 33-35
60325 Frankfurt
Germany
Phone: +49 069 3650638 00

London

25 Savile Row
4th Floor
London W1S 2ER, England
Phone: +44 (0) 20 7518 8900

SOURCES

1. Pitchbook.
2. CapIQ.
3. HW Proprietary transaction information.
4. PNC Capital Markets.
5. S&P LCD Stats.

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