



Issue 34

October–December 2016 and year in review

Global technology M&A report

**Digital disruption
propels industry
shifts – and record
annual value**



EY

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Highlights

Massive digital transformation caused by disruptive cloud, mobile, social and big data analytics technologies drove global technology M&A to a second consecutive all-time value record in 2016, even as other industries' M&A fell. Expect second-order effects made possible by those disruptive technologies, such as business model change, Internet of Things (IoT) and artificial intelligence (AI), to continue fueling high tech-targeted M&A in 2017.

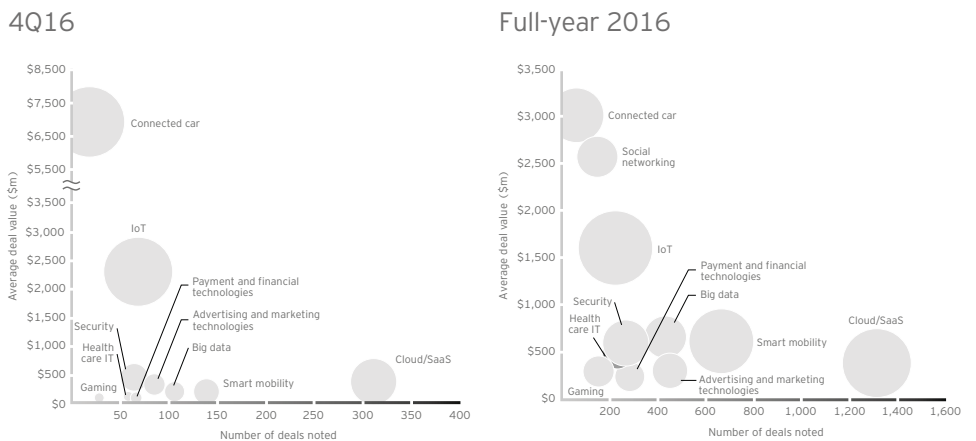
- ▶ Aggregate 2016 value* of \$466.6 billion was the highest ever, 2% over 2015's prior record; 4Q16's \$117.2 billion was down 38% year-over-year (YOY).
- ▶ Full-year volume of 3,796 deals slumped 5%. A 7% sequential 4Q16 drop to 844 deals was the second consecutive decline, which hadn't happened since 2012.
- ▶ Non-tech and private equity (PE) buyers rose to a combined 42% of 2016 aggregate value from 24% in 2015; tech company aggregate value declined.
- ▶ Four megadeals topped \$10 billion, compared with eight in 2015 but only six in the prior decade.
- ▶ In cross-border (CB) dealmaking, 4Q16 value was up 147% YOY, helping drive full-year CB value up 63% to a second consecutive record (\$208.2 billion). ■

Deal drivers

Despite the overall 2016 volume decline, half of these disruptive technology trends continued rising: cloud/SaaS, IoT, big data analytics, gaming and connected cars. Seven of 10 rose in value.

- ▶ Cloud/SaaS and smart mobility continued to drive the most volume in 2016 (we think of them as "background radiation"). But big data analytics targets began catching up. IoT drove the highest total value but had only third-highest average value due to greater deal volume
- ▶ In 4Q16, tech companies continued seeking stronger positions within key disruptive digital technologies, driving up volume for 6 out of 10, including IoT and big data. IoT and connected car had the only rising value in 4Q16. ■

■ Figure 1: A directional view of select 2016 deal-driving trends



Note: average deal value is based on the value of disclosed-value deals, while volume of deals includes both disclosed-value and undisclosed-value deals. Bubble size is based on each deal-driving trend's share of total quarterly and full-year value.

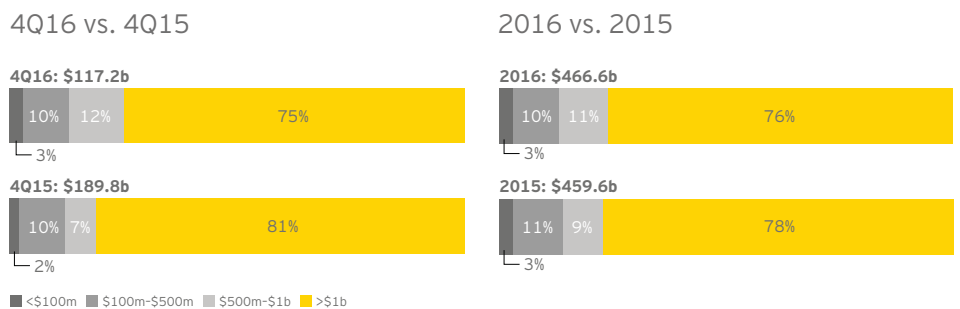
Source: EY analysis of The 451 Group Research M&A KnowledgeBase, accessed 10 January 2017.

Deal size

Squeezed in 2015 by surging big-ticket (\$1 billion and up) deals, midsize deals were the only category to grow value in 2016 – despite the ongoing big-ticket surge to an unprecedented 92 deals.

- ▶ Deals from \$500 million to \$1 billion rose 22% in volume (+13 deals) and 26% in value to \$51.2 billion in 2016.
- ▶ Deals above \$1 billion increased 46% in volume (+29 deals to 92) but declined 0.4% in value to \$354.8 billion.
- ▶ In 4Q16, midsize deal value rose 12% YOY while deals from \$100 million to \$500 million fell 40% (-\$7.8 billion) and big-ticket deals fell 43% (-\$66.1 billion). ■

■ Figure 2: Aggregate value of announced deals by deal size



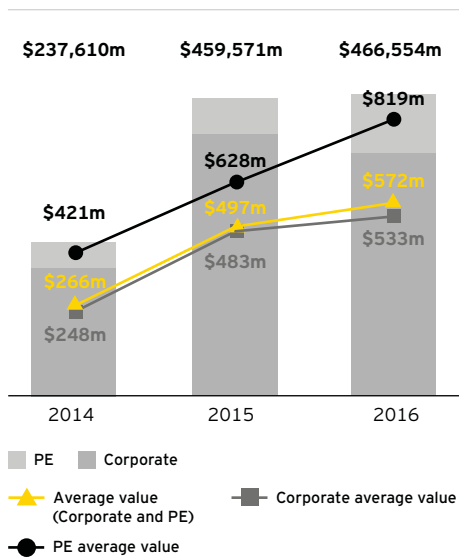
Note: percentages may not total 100% because of rounding.

Source: EY analysis of The 451 Group Research M&A KnowledgeBase, accessed 10 January 2017.

*All values in this report are of disclosed-value deals only, and all dollar references are in US dollars unless otherwise indicated.

Global technology M&A update

Figure 3: Total and average deal values for deals with disclosed values 2014-16



Source: EY analysis of The 451 Group Research M&A KnowledgeBase, accessed 10 January 2017.

Digital disruption propels industry shifts – and record annual value

The growing business implications of disruptive digital technologies drove important shifts in global technology M&A during 2016 and equally significant transformation for incumbent tech companies. It was a year of record semiconductor consolidation driven by breakaway growth targeting IoT technologies, of record divestitures as companies cored down their focus (but broadened solutions within their focus), of a major West-to-East shift in deal value, of vaulting cross-industry “blur” from non-tech buyers, unprecedented CB deal value and record PE buying. Amid all the shifts, 2016 aggregate disclosed-deal value lifted slightly above 2015 to set a new all-time annual value record.

Tech dealmakers pursue solutions-building, IoT, cybersecurity, big data analytics

As 2016 progressed, potential second-order effects of the disruptive digital technologies (cloud computing, smart mobility, social networking and big data analytics) drove tech-company transformation that accelerated the trend we call stack to solution, in which companies build scale and end-to-end solutions in response to customer demand. Those effects include:

- ▶ Business model change
- ▶ The rising role of IoT, from retail to the factory floor
- ▶ The growing importance of big data analytics to help companies make sense of the sensor-instrumented digital fabric now enveloping developed economies
- ▶ The increasingly critical role of cybersecurity in protecting digital networks and data

“The second-half slowdown in global technology M&A deal volume suggests tech companies are approaching a dealmaking plateau. But with digital technology disruption still in its infancy and the extraordinary growth of IoT-related deals, it’s likely to be a very high-altitude plateau, indeed.”



Jeff Liu
EY Global Technology Industry Leader
Transaction Advisory Services

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At the same time:

- ▶ Non-tech companies dealing with digital transformations in their own industries doubled the disclosed value of tech companies they acquired.
- ▶ PE dealmakers continued taking private tech incumbents in the crosshairs of disruptive technology start-ups or activist investors, but also began privatizing even relatively young tech companies (including recent disruptors). PE leaped to new volume and value records (see pages 5 and 9).
- ▶ Regionally, there was disclosed-value growth only in Asia-Pacific and Japan (APJ), led by China and Japan and mostly across borders (see APJ snapshot, page 14). Consequently, CB value rose to a record \$208.2 billion (see Cross-border value flow, page 24). Meanwhile, the Americas (page 12) and Europe, the Middle East and Africa (EMEA, page 16) both declined.
- ▶ Multibillion dollar “spin-mergers” and divestitures hit new records, helping tech incumbents transform while presenting many examples of our “hidden gems” theme, in which divested units can produce more value in the hands of a strategic buyer (see page 9).
- ▶ Deals targeting cybersecurity technologies rose 48% in value, as cyber breaches continued to make headlines and advertising and marketing deal value rose 50% – while IoT deal value tripled.

- ▶ We noted approximately 70 deals for AI and machine learning technologies, many acquired by household-name tech companies across a diverse range of applications. AI could be starting an important new deal-driving trend. ■

■ Non-tech transactions scorecard, 2015 vs. 2016

	2015	2016	YOY change
Announced deals	557	551	-1%
Deals with disclosed value	152	157	3%
Total value of deals	\$53.6b	\$107.9b	101%
Average value of deals	\$353m	\$687m	95%

■ Figure 4: Global technology transaction scorecard (corporate and PE), 4Q16

Deals announced	4Q15	4Q16	Sequential % change	YOY % change
Corporate				
Number of deals announced	862	748	-8% ▼	-13% ▼
Number of deals with disclosed values	235	175	5% ▲	-26% ▼
Total value of deals with disclosed values (\$m)	\$171,308	\$96,351	-19% ▼	-44% ▼
Average value of deals with disclosed values (\$m)	\$729	\$551	-23% ▼	-24% ▼
PE				
Number of deals announced	70	96	-4% ▼	37% ▲
Number of deals with disclosed values	21	25	-19% ▼	19% ▲
Total value of deals with disclosed values (\$m)	\$18,535	\$20,819	-42% ▼	12% ▲
Average value of deals with disclosed values (\$m)	\$883	\$833	-28% ▼	-6% ▼
Corporate and PE				
Number of deals announced	932	844	-7% ▼	-9% ▼
Number of deals with disclosed values	256	200	2% ▲	-22% ▼
Total value of deals with disclosed values (\$m)	\$189,844	\$117,170	-25% ▼	-38% ▼
Average value of deals with disclosed values (\$m)	\$742	\$586	-26% ▼	-21% ▼

Note: numbers may not add to totals because of rounding.

Source: EY analysis of The 451 Group Research M&A KnowledgeBase, accessed 10 January 2017.

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4Q16 and full-year 2016, by the numbers

The stunning post-dotcom-bubble quarterly aggregate value record set in 4Q15 makes for tough fourth-quarter comparisons. But 4Q16 still had the sixth-highest quarterly value ever and helped push 2016 to a full-year record.

- ▶ 2016 aggregate value of all deals with disclosed values rose to \$466.6 billion, 2% higher than \$459.6 billion in 2015 and the highest annual value ever for tech M&A. This was despite a 38% YOY decline in 4Q16 aggregate value to \$117.2 billion from 4Q15's \$189.8 billion, which was topped only once: the first quarter of 2000 had \$228.4 billion. Deals of \$1 billion or more rose to an unprecedented 92 (compared with 63 in 2015). They included four megadeals above \$10 billion.
 - ▶ Aggregate value acquired by tech companies fell 50% YOY in 4Q16 to \$81.6 billion from \$164.7 billion in 4Q15. For the year, they slumped 23% to \$268.6 billion from \$350 billion in 2015; their share of all-deal value fell to 58% from 76% in 2015. They had 45 deals valued at \$1 billion or more.
 - ▶ Non-tech and PE buyers' growth more than made up for tech companies' decline, with non-tech growing faster and higher. Though 4Q16 was non-tech buyers' lowest-value quarter (\$14.7 billion), value still rose 124% YOY. For 2016, non-tech buyers doubled aggregate value for the second consecutive year, further blurring the boundaries between tech and other industries.
- They rose 101% to \$107.9 billion from \$53.6 billion in 2015, and had 17 deals valued at \$1 billion or more.
- ▶ PE buyers had their fourth-highest quarterly value ever in 4Q16 (\$20.8 billion) – but it was only the third-highest of 2016, which included 3Q16's record quarterly value of \$36.1 billion. Consequently, PE also set a record for annual aggregate value: \$90.1 billion, up 61%. They had 30 deals valued at \$1 billion or more.
 - ▶ Only PE had volume growth in 2016, rising 34% (98 deals) to 383 – a new volume record. They also set a new quarterly volume record in 3Q16 (100 deals). But PE volume growth was not enough to overcome the 292-deal full-year decline from tech companies, whose volume fell 9% to 2,862 deals (from 3,150 in 2015). Non-tech volume plateaued, down only 6 deals to 551. Overall, annual volume fell 200 deals to 3,796 in 2016 from 2015's post-dotcom-bubble record 3,996.
 - ▶ The quarterly and annual volume decline continued out-of-sync with the NASDAQ Composite Index, which rose for both periods. M&A deal volume and the NASDAQ have correlated for most of the past 21 years (see Figure 26, page 27).
 - ▶ CB deal value rose 147% YOY to \$67.8 billion in 4Q16 and 63% for the year to \$208.2 billion – a new annual record. APJ had five times more CB value than in 2015 (see APJ snapshot, page 14, and Cross-border value flow, page 24). ■

■ Figure 5: Global technology transaction scorecard (corporate and PE), 2015 vs. 2016

Deals announced	2015	2016	YOY % change
Corporate			
Number of deals announced	3,711	3,413	-8% ▼
Number of deals with disclosed values	836	706	-16% ▼
Total value of deals with disclosed values (\$m)	\$403,639	\$376,497	-7% ▼
Average value of deals with disclosed values (\$m)	\$483	\$533	10% ▲
PE			
Number of deals announced	285	383	34% ▲
Number of deals with disclosed values	89	110	24% ▲
Total value of deals with disclosed values (\$m)	\$55,932	\$90,057	61% ▲
Average value of deals with disclosed values (\$m)	\$628	\$819	30% ▲
Corporate and PE			
Number of deals announced	3,996	3,796	-5% ▼
Number of deals with disclosed values	925	816	-12% ▼
Total value of deals with disclosed values (\$m)	\$459,571	\$466,554	2% ▲
Average value of deals with disclosed values (\$m)	\$497	\$572	15% ▲

Source: EY analysis of The 451 Group Research M&A KnowledgeBase, accessed 10 January 2017.

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Rising data, IoT drive 2016 megadeals

Three of four 2016 megadeals above \$10 billion were driven in large part by the growing business value of data and, in two cases, the role of IoT in extracting data from the physical world and helping to make sense of it. IoT dealmaking rose faster and higher than any other deal-driving trend in 2016. The four megadeals were down from eight in 2015, making a dozen in the last two years (compared with only six in the previous decade).

- ▶ Because IoT networks require a diverse range of functions, including processing, storage, networking, mobility and security, they help drive the stack-to-solution trend in which tech companies assemble broad portfolios of related products to meet customer demand for complete solutions. The two largest megadeals (Qualcomm-NXP and SoftBank Group-ARM) target semiconductor companies and position the buyers to benefit from anticipated explosive IoT growth in many industries – particularly automotive in the case of Qualcomm-NXP (see Semiconductors snapshot, page 22).
- ▶ Qualcomm CEO Steve Mollenkopf compared the emergence of IoT and connected car technologies to “where handsets were back in 2000.”¹ Masayoshi Son, CEO of non-tech buyer SoftBank Group, called the deal for British chip-design firm ARM a “paradigm shift” at SoftBank to invest in IoT.²

- ▶ Microsoft's \$26.2 billion megadeal for LinkedIn reflects how significantly social networking is transforming enterprise operations – not “only” individual behavior and society. The deal envisions integration of LinkedIn's deep data troves on the attributes of millions of professionals with Microsoft's applications. Microsoft CEO Satya Nadella has said such integration makes possible new experiences, including news feeds that offer articles related to work projects in progress and suggesting experts to help with current work tasks.³
- ▶ The fourth megadeal was a more straightforward semiconductor consolidation deal between analog chip companies Analog Devices and Linear Technology (deal pending closure), targeting growth in several industries, including automotive (see Semiconductors snapshot, page 22). ■

Aggregate deal value declines in 4Q16, but increases marginally for the year

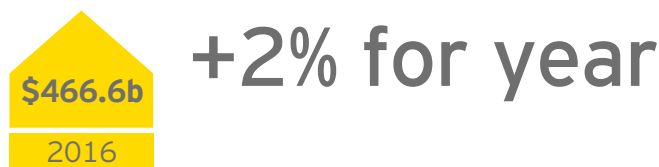


Figure 6: Global top 10 deals, 4Q16

Buyer	Target	Disclosed value (\$m)	Announced	Deal type	Multiple of EV/TTM revenue	Multiple of EV/TTM EBITDA	Premium offered
Qualcomm Incorporated	NXP Semiconductors NV	\$39,187	27 Oct	Corporate	5.5x	19.6x	33%
Samsung Electronics Co. Ltd.	Harman International Industries Inc.	\$8,000	14 Nov	Corporate	1.2x	10.2x	37%
Broadcom Ltd.	Brocade Communications Systems Inc.	\$5,500	2 Nov	Corporate	2.6x	13.2x	38%
Ocean Management Holdings Ltd.	Qunar Cayman Islands Ltd.	\$4,440	19 Oct	PE	6.8x	N/A	-9%
Siemens AG	Mentor Graphics Corporation	\$4,029	14 Nov	Corporate	4.1x	33.2x	35%
Equinix Inc.	29 data centers of Verizon Communications Inc.	\$3,600	6 Dec	Corporate	N/A	N/A	N/A
Cinven/Permira/Mid Europa	Grupa Allegro Sp. z o.o.	\$3,253	14 Oct	PE	N/A	N/A	N/A
Roper Technologies Inc.	Deltek Inc.	\$2,800	6 Dec	Corporate	N/A	N/A	N/A
Symantec Corporation	LifeLock Inc.	\$2,335	20 Nov	Corporate	3.5x	74.5x	39%
BC Partners/Medina Capital Longview Asset Management	Data centers and colocation business of CenturyLink Inc.	\$2,300	4 Nov	PE	3.7x	N/A	N/A

Source: EY analysis of The 451 Group Research M&A KnowledgeBase, accessed 10 January 2017.

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Big-ticket M&A accelerates tech and non-tech company transformations

Strategic M&A helped tech and non-tech companies alike accelerate digital transformation in 2016.

- ▶ After the megadeals, the next-largest deal of the year was Oracle's \$9.3 billion offer for NetSuite, which aims to accelerate Oracle's move to cloud/SaaS.
- ▶ Next was Hewlett Packard Enterprise's (HPE's) "spin-merger" of its software business division to Micro Focus, one of two HPE divestitures to make the year's top 10 deals. HPE shareholders would own 50.1% of Micro Focus after the deal closes.⁴ HPE's other top 10 deal was the spin-merger of its Enterprise services division in a 50-50 joint venture with Computer Sciences.
- ▶ Overall, HPE's 2016 deals exemplified both our hidden gems theme (see Software/SaaS snapshot, page 23) and stack to solution: the company did divestitures to core its focus and then rapidly broadened the scope of its remaining solutions through acquisition. Per HPE's statement on the services unit spin-off, the deal enables the company to sharpen its focus on "end-to-end infrastructure solutions necessary to power the enterprise cloud and mobility."⁵ HPE also acquired at least two companies in 2016: a virtualized backup and recovery software provider for an undisclosed value, and supercomputer maker Silicon Graphics Inc. for \$275 million.
- ▶ Among non-tech companies, Verizon Communications Inc. provides instructive examples. It pursued transformations into IoT as well as marketing and advertising while divesting data center assets (see IT services snapshot, page 21). On the advertising side, it followed 2015's AOL deal with one for Yahoo! in 3Q16 (though there's a chance the Yahoo! deal may be derailed because of a cyber hack⁶).

We found 5 more deals for media-related technology among 10 2016 Verizon tech acquisitions. But we also found three targeting IoT technologies, including a \$2.4 billion deal for vehicle-tracking telematics company Fleetmatics PLC and a non-disclosed-value deal for Sensity Systems, whose sensors embed in LED lighting structures. On the IoT front, Verizon envisions "large-scale implementations that will drive the digital transformation of cities, universities and venues."⁷

- ▶ Likewise, US-based Wal-Mart Stores, Inc. provides notable examples. Walmart sold its Yihaodian Chinese e-commerce marketplace to China's JD.com for \$1.5 billion as part of a broad-based ongoing offline and online alliance for the Chinese market.⁸ Then, in 3Q16, Walmart announced a \$3.3 billion deal for e-commerce company Jet.com that aims to accelerate the brick-and-mortar retailer's transformation into offering a "seamless" digital-and-physical shopping experience by injecting "a jolt of entrepreneurial spirit" into the company.⁹ ■

\$354.8b

Value of 92 big-ticket deals – representing 76% of aggregate value for full-year 2016.

Figure 7: Global top 10 deals, 2016

Buyer	Target	Disclosed value (\$m)	Announced	Deal type	Multiple of EV/TTM revenue	Multiple of EV/TTM EBITDA	Premium offered
Qualcomm Inc.	NXP Semiconductors NV	\$39,187	27 Oct	Corporate	5.5x	19.6x	33%
SoftBank Group Corporation	ARM Holdings plc	\$32,434	18 Jul	Corporate	20.9x	46.2x	61%
Microsoft Corporation	LinkedIn Corporation	\$26,200	13 Jun	Corporate	8.2x	74.0x	54%
Analog Devices Inc.	Linear Technology Corporation	\$14,880	26 Jul	Corporate	9.4x	19.6x	32%
Oracle Corporation	NetSuite Inc.	\$9,300	28 Jul	Corporate	10.6x	N/A	58%
Micro Focus International plc	Software business division of Hewlett Packard Enterprise	\$8,800	7 Sep	Corporate	2.9x	13.3x	N/A
Tencent Holdings Ltd.	Supercell Oy	\$8,568	21 Jun	Corporate	3.7x	9.2x	N/A
Samsung Electronics Co. Ltd.	Harman International Industries Inc.	\$8,000	14 Nov	Corporate	1.2x	10.2x	37%
Tianjin Tianhai Investment Co. Ltd.	Ingram Micro Inc.	\$6,000	17 Feb	Corporate	0.1x	10.5x	43%
Computer Sciences Corporation	Enterprise services division of Hewlett Packard Enterprise	\$6,000	24 May	Corporate	0.4x	N/A	N/A

Source: EY analysis of The 451 Group Research M&A KnowledgeBase, accessed 10 January 2017.

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IoT, cybersecurity, advertising and marketing help drive value growth

Besides IoT, whose deal value tripled in 2016, cybersecurity and advertising and marketing also posted significant value growth. Many of the disruptive technologies we follow remained relatively stable; others appeared to lose steam – and AI appeared to be gathering momentum.

- ▶ IoT volume increased 30% to 221 deals for the year and value tripled (+203%) to \$103.4 billion. Like 2015, most volume was in computers, peripherals and electronics (CPE) and software/SaaS (see pages 19 and 23, respectively), but most value was in semiconductors (see page 22). IoT and connected car deals overlapped almost perfectly: all \$57 billion in disclosed value of connected car-driven deals were also IoT deals.
- ▶ Cybersecurity disclosed-deal value rose 48% to \$39.8 billion in 2016, even though volume declined 8% to 263 deals. Often, security deals were integrated with other technologies: more than 30 big data analytics deals included security, as did slightly more than 20 IoT deals and nearly 20 deals targeting payments and financial services technologies. In 4Q16, Symantec's deal for identity-theft protection company LifeLock made the quarter's top 10 deals (see Figure 6, page 6).
- ▶ In deals targeting big data analytics, volume rose 13% to 428 deals, but value fell 7% to \$35.6 billion. More than 80 big data deals overlapped with advertising and marketing, such as a \$1.1 billion PE deal for Sitecore A/S, a Danish customer experience management, web content and analytics company. The disclosed value of all advertising and marketing deals rose 50% in 2016 to \$23.1 billion, but volume declined 13% to 449 deals.
- ▶ After roughly doubling in 2014 and 2015, 2016 deals targeting payments and financial services technologies fell 64% in value to \$16.1 billion and 19% in volume to 281 deals. Gaming rose in both volume (1% to 150 deals) and value (18% to \$18.1 billion). The remaining deal-driving disruptive technologies were mixed: cloud/SaaS volume rose 3% to 1,309 deals but fell 32% in value to \$89.8 billion; smart mobility fell 23% in volume to 662 deals but rose 40% in value to \$79.6 billion; and health care IT (HIT) fell 4% in volume to 242 deals but rose 2% in value to \$22.5 billion.

- ▶ AI and machine learning have cropped up in a key deal or two in the last few years, but they seemed to emerge in earnest as a 2016 target. We counted three dozen deals, with household-name buyers including ARM, eBay Inc., Google Inc., Facebook Inc., IBM Corporation, Intel, Microsoft, Salesforce.com Inc. and Uber Technologies Inc. Many deals targeted image analysis including for facial recognition or automated driver assistance systems, unstructured text analysis including for e-discovery, customer analytics for personalization and recommendations, predictive analytics, several different cybersecurity uses such as for intrusion detection and anti-phishing, and more. We'll keep a close eye on AI in 2017.

Tech and non-tech: headed toward convergence?

The distinction between tech and some non-tech industries may well disappear in the next few years if non-tech companies' rising role in 2016 technology dealmaking continues.

- ▶ Non-tech buyers acquired 23% of 2016 all-deal aggregate value (up from 12% in 2015). And they acquired even greater shares of certain technologies: 29% of disclosed value in advertising and marketing, 33% in payments and financial services technologies and – most notably – 38% of IoT, which only comparatively recently emerged as a strategically important technology.
- ▶ Increasing deal competition due to the growing role of non-tech buyers may be one of the factors supporting high deal valuations. It may also help explain why, in 2016, technology M&A outpaced M&A in all industries, which fell 15% in value.¹⁰

\$208.2b

CB value for full-year 2016 sets new all-time record.

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PE firms acquire incumbents “in the crosshairs” – and disruptive tech on market dips

We talk often about how PE firms take private incumbent tech companies whose core businesses are overshadowed by disruptive digital technologies or new business models, and that therefore find themselves “in the crosshairs”¹¹ of activist investors and disruptive technology start-ups. As equity market volatility rose in 2016, however, the disrupters themselves began seeing steep valuation fluctuations. PE firms became quick to buy when such opportunities arose, leading to new quarterly and full-year PE records in both volume and aggregate value.

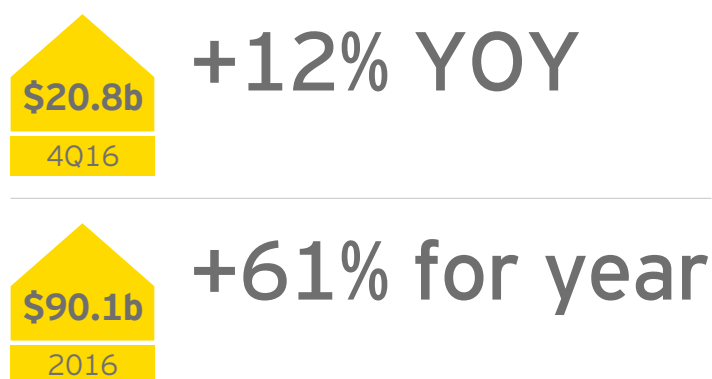
- ▶ PE buyers mainly focused on software/SaaS and internet companies, which together accounted for 61% of PE’s 2016 record annual value of \$90.1 billion. E-commerce was a major internet focus, exemplified in 4Q16 by a \$3.3 billion deal for Grupa Allegro, a Polish classified and price comparison site. Software/SaaS targets ranged from security (Intel’s \$2.2 billion 4Q16 divestiture of Intel Security) to advertising and marketing (a \$1.8 billion privatization of Marketo in 2Q16) to big data (QlikTech Inc. for \$3 billion in 2Q16) to big data advertising and marketing combinations, such as the Sitecore deal mentioned earlier.
- ▶ Notably, Marketo and QlikTech exemplified PE deals targeting relatively young disruptive technology companies that saw sudden share price fluctuations before going private.¹²
- ▶ PE buyers acquired cloud data center operations all year, exemplified in a \$2.3 billion 4Q16 divestiture from US telco CenturyLink. In 3Q16, Rackspace Inc. was taken private for \$4.3 billion. PE acquired 29% (\$25.7 billion) of the value of cloud/SaaS targets.
- ▶ PE also acquired 44% (\$10.1 billion) of the disclosed value of advertising and marketing targets, 36% (\$13 billion) of big data analytics targets, 28% (\$11.2 billion) of security targets and 28% (\$5 billion) of gaming targets.
- ▶ Value acquired by PE buyers increased for the US (+74% to \$45.5 billion) and China (+27% to \$24.2 billion) in 2016 but fell 10% for the UK (to \$8 billion). Concurrently, there was a significant PE increase beyond those top three buyers, to more than \$12 billion in 2016 from less than \$2 billion in 2015. So, the concentration of PE value in the top three countries fell to 86% from 97% in 2015.

Tech divestiture value soars for the year, but volume declines in 4Q16

Accelerating technology disruption leads to business strategy change faster than ever before – so tech companies are reviewing their business portfolios more often than ever before. In 2016, we saw many examples in which companies divested units purchased only a few years before, as shifting strategy transformed those businesses into hidden gems that could be more valuable to another acquirer.

- ▶ 4Q16 divestiture deal value was only \$10.7 billion, the lowest quarterly total of the year. But divestiture value nearly doubled for the full year (+99%), to \$83.5 billion.
- ▶ Divestiture deal volume continued its multiyear acceleration in the first half of 2016 but appeared to peak at 175 deals in 2Q16, falling to 105 in 4Q16. The approximately 560 deals we saw for the year were 12% higher than 2015, but 4Q16 was down about 19% YOY and sequentially.
- ▶ HPE, Dell and others divested businesses that were previously acquired. Additionally, non-tech companies divested previously acquired technology assets, exemplified by the two highest-value 4Q16 divestitures: Verizon’s and CenturyLink’s data center assets (see IT services snapshot, page 21).
- ▶ Although divestitures occurred throughout every region of the world and in every technology subsector, the largest concentration (nearly 30%) was in IT services, where four of the top five deals were divestitures. ■

PE value strong in 4Q16 and full-year 2016



Look ahead

Digital transformation will continue to drive tech M&A

“Expect tech M&A values and volumes to remain high in 2017 – though perhaps not quite at the record levels of 2016. But get ready for new disruptions, including artificial intelligence and machine learning, which could drive dealmaking higher late in the year and in 2018.”

Jeff Liu

EY Global Technology Industry Leader
Transaction Advisory Services

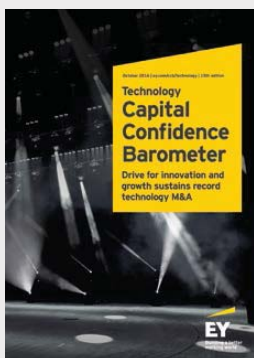
Given two consecutive quarters of declining volume, the mixed messages tech executives sent in our October 2016 *Capital Confidence Barometer* survey (described in our 3Q16 report) and still-rising geopolitical and economic uncertainty, we expect 2017 to see a decline from 2016 levels for global technology M&A activity. But that decline will likely be small.

For one thing, it seems business executives in general are so used to uncertainty that it may no longer be much of a dealmaking deterrent. Perhaps it's a “new normal,” reflecting recent reports that consumer and business confidence in the US, UK and Europe appears unfazed by rising political uncertainty.¹

Second, technology continues its rapid evolution, and all industries are experiencing profound disruptive digital technology transformations. Tech dealmakers – whether tech incumbents, non-tech buyers or PE – know they can't wait for markets to stabilize; they're ready to make deals when opportunities arise.

To help assess your dealmaking opportunities, we suggest technology executives test their organizations against these questions:

- ▶ Are we positioned to offer customers true solutions or even answers, as opposed to just a point offering in the overall technology stack?
- ▶ Is there a “hidden gem” among our business units and other departments, with the potential to drive greater value?
- ▶ Has disruptive technology placed our organization “in the crosshairs” of some upstart companies or of activist investors?
- ▶ Are we doing all we can to provide comprehensive security in our offerings?



Access our latest *Capital Confidence Barometer – Technology* report at ey.com/ccb/technology

\$466.6b

Full-year 2016 value was the highest ever – surpassing the prior record value set in 2015.

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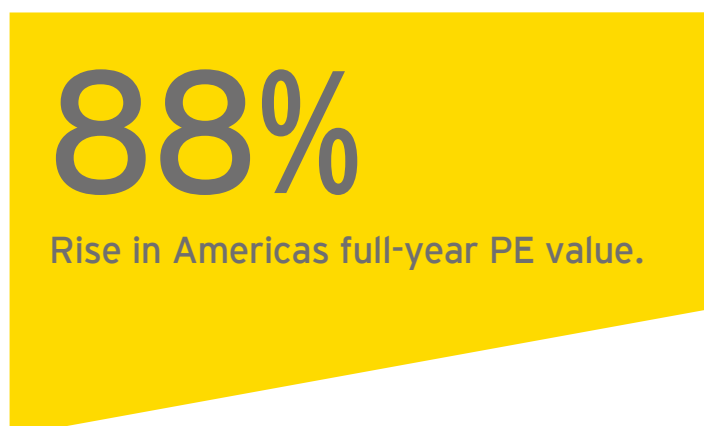
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Regional snapshot

Americas

Americas tech M&A activity fell in 2016, though the region's buyers generated a record number of big-ticket deals and accounted for most global deal volume and value. Incumbent tech companies focused on business transformation with big-ticket deals targeting global technology megatrends, including IoT and connected cars. Cloud/SaaS, mobility, big data analytics and HIT drove many deals.

- ▶ Full-year deal value in the Americas was \$267.6 billion, 20% lower than in 2015. That decline and rising APJ value during 2016 shrunk Americas' share of global value to 57% from 73% in 2015. Volume fell 6% to 2,399 deals, which accounted for 63% of global volume, compared with 64% in 2015.
- ▶ Americas buyers captured a record 53 big-ticket deals in 2016, accounting for 78% of the region's value. They included three of the four megadeals above \$10 billion. Non-tech buyers accounted for only 12% of Americas volume and 14% of value, both below the global averages of 15% and 23%, respectively.
- ▶ Full-year PE value increased 88% to \$51 billion, representing 57% of global PE value; volume rose 37% to 258 deals, 67% of the global total. Cloud/SaaS was a factor in more than 40% of Americas PE deals.
- ▶ 4Q16 aggregate value was \$81.7 billion, down 48% from 4Q15 but 2% higher than 3Q16. Volume fell 2% YOY but rose 3% sequentially to 550 deals.
- ▶ Including the Qualcomm-NXP and Analog-Linear megadeals shown in Figure 8, semiconductor consolidation drove \$70.6 billion in Americas value; that represents 57% of all 2016 disclosed value from semiconductor targets.
- ▶ Microsoft's megadeal for LinkedIn reflects the way social networking is transforming business, the rising role of big data and the potential for both those technologies to transform Microsoft products.¹
- ▶ Another semiconductor buyer, Broadcom, broadened into enterprise storage and communications technology with its deal for Brocade (Figure 9), which made multiple solution-broadening deals itself earlier this year.²
- ▶ Cloud/SaaS factored into nearly 950 deals, representing 72% of global cloud/SaaS volume and 83% of value. The largest was Oracle-NetSuite, reflecting Oracle's continuing transition to cloud computing.³ In 4Q16, Equinix announced a \$3.6 billion deal for 29 Verizon Communications data centers.
- ▶ IoT factored into nearly 145 deals, with \$54.3 billion in disclosed value, representing 65% of global IoT volume and 53% of value. Connected-car technologies drove 37 Americas deals – all but one of which overlapped with IoT – totaling \$44.5 billion, compared with 20 deals totaling \$1.1 billion in 2015. They included Qualcomm-NXP, as well as acquisitions by car makers, technology companies, a ride-sharing service and a telecommunications company.
- ▶ Security deals drove \$23.5 billion in Americas value. Symantec's ongoing broadening beyond PC software led it to two big-ticket deals: a 4Q16 deal for identity-theft protection company LifeLock and a \$4.7 billion 2Q16 deal for web content filtering firm Blue Coat Systems.
- ▶ IT services deals included HPE's 2Q16 "spin-merger" of its Enterprise services division with Computer Sciences in a 50-50 joint venture that will have annual global services revenue of approximately \$26 billion.⁴ ■



"Americas tech incumbents are taking aggressive steps to transform their businesses as the pace of disruptive digital technology innovation continues to accelerate."

David Hedley
US Technology M&A Leader
Ernst & Young Capital Advisors, LLC*

*Ernst & Young Capital Advisors, LLC (EYCA) is a registered broker-dealer and member of FINRA (www.finra.org) providing sector-specific advice on M&A, debt capital markets, equity capital markets and capital restructuring transactions. It is an affiliate of Ernst & Young LLP, a member firm of Ernst & Young Global Limited serving clients in the US.

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Figure 8: Top five Americas deals (corporate and PE), 2016

Buyer	Target	Disclosed value (\$m)	Announced	Deal type	Premium offered
Qualcomm Inc.	NXP Semiconductors NV	\$39,187	27 Oct	Corporate	33%
Microsoft Corporation	LinkedIn Corporation	\$26,200	13 Jun	Corporate	54%
Analog Devices Inc.	Linear Technology Corporation	\$14,880	26 Jul	Corporate	32%
Oracle Corporation	NetSuite Inc.	\$9,300	28 Jul	Corporate	58%
Computer Sciences Corporation	Enterprise services division of Hewlett Packard Enterprise	\$6,000	24 May	Corporate	N/A

Figure 9: Top five Americas deals (corporate and PE), 4Q16

Buyer	Target	Disclosed value (\$m)	Announced	Deal type	Premium offered
Qualcomm Inc.	NXP Semiconductors NV	\$39,187	27 Oct	Corporate	33%
Broadcom Ltd.	Brocade Communications Systems Inc.	\$5,500	2 Nov	Corporate	38%
Equinix Inc.	29 data centers of Verizon Communications Inc.	\$3,600	6 Dec	Corporate	N/A
Roper Technologies Inc.	Deltek Inc.	\$2,800	6 Dec	Corporate	N/A
Symantec Corporation	LifeLock Inc.	\$2,335	20 Nov	Corporate	39%

Figure 10: Americas transactions scorecard, 4Q16

Deals announced	4Q15	4Q16	Sequential % change	YOY % change
Corporate				
Number of deals announced	520	485	3% ▲	-7% ▼
Number of deals with disclosed values	121	90	41% ▲	-26% ▼
Total value of deals with disclosed values (\$m)	\$149,342	\$71,969	28% ▲	-52% ▼
Average value of deals with disclosed values (\$m)	\$1,234	\$800	-9% ▼	-35% ▼
PE				
Number of deals announced	40	65	2% ▲	63% ▲
Number of deals with disclosed values	10	15	-25% ▼	50% ▲
Total value of deals with disclosed values (\$m)	\$6,540	\$9,735	-59% ▼	49% ▲
Average value of deals with disclosed values (\$m)	\$654	\$649	-45% ▼	-1% ▼
Corporate and PE				
Number of deals announced	560	550	3% ▲	-2% ▼
Number of deals with disclosed values	131	105	25% ▲	-20% ▼
Total value of deals with disclosed values (\$m)	\$155,881	\$81,704	2% ▲	-48% ▼
Average value of deals with disclosed values (\$m)	\$1,190	\$778	-18% ▼	-35% ▼

Note: numbers may not add to totals because of rounding.

Source: EY analysis of The 451 Group Research M&A KnowledgeBase, accessed 10 January 2017.

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Regional snapshot

Asia-Pacific* and Japan (APJ)

APJ aggregate value soared to a record in 2016 and was responsible for the new global value record, too. Japan and South Korea joined China's ongoing deal-value growth, often targeting US and EMEA companies in big-ticket deals. Many deals focused on cloud/SaaS, mobility, big data analytics, gaming, and advertising and marketing.

- ▶ APJ was the only region whose aggregate value rose for the year: up 174% to \$141.4 billion. Americas and EMEA targets accounted for 63% of APJ value and 29% of volume, including 13 big-ticket deals.
- ▶ APJ's value rise, coupled with a 23% fall in US buyer value, caused a notable West-to-East value shift: APJ's share of global M&A value nearly tripled to 30% from only 11% in 2015. China and Japan accounted for 76% of the increase.
- ▶ Twenty-four big-ticket deals totaling \$108.9 billion drove almost the entire increase. China (mainland) buyers made 17 of the 24 deals, followed by Japan (3) and South Korea and Taiwan (2 each). In 2015, 10 big-ticket APJ deals totaled \$29.7 billion.
- ▶ APJ volume fell slightly (1%) in 2016 from 529 to 524 deals, less than the global average decline of 5%. The region had 14% of global volume, up from 13% in 2015. However, fourth-quarter volume dropped 24% YOY and 25% sequentially to 110 deals, while value fell 26% YOY and 61% sequentially to \$20.5 billion.
- ▶ China accounted for 51% (\$72.4 billion – a record) of APJ value, up 82% from 2015; and 32% of volume (167 deals), a 48% rise. Of China's value, 57% targeted Americas and EMEA firms, including the top three deals.
- ▶ Mobile gaming drove China's largest deal, Tencent's \$8.6 billion deal for a majority stake in Finland's Supercell. The deal reinforces Tencent's position as the world's largest videogame publisher by revenue and highlights its global expansion plans.¹ APJ buyers had 70% of global mobility value.
- ▶ China companies announced 21 semiconductor deals with \$7.1 billion in disclosed value, including 12 CB deals, as the country continued efforts to strengthen its semiconductor industry. At least two other 2016 semiconductor deals with Chinese buyers were halted during the year because of governmental concerns in the target company countries.^{2,3}
- ▶ Non-tech buyers accounted for 19% of APJ volume and 39% of value, including APJ's largest deal: the \$32.4 billion deal for ARM by Japanese multinational mobile telecommunications company SoftBank Group, for which the deal marks a "paradigm shift" to invest in IoT.⁴ ARM, the UK semiconductor design firm known for the microprocessors in most smartphones, has been diversifying into IoT. Largely because of that deal, APJ accounted for 45% of global IoT value.
- ▶ HIT drove another top five deal by a Japanese buyer, Canon-Toshiba Medical Systems (a maker of imaging and other medical technology). Canon reportedly seeks to diversify as the camera industry declines.⁵
- ▶ India was second in APJ volume with 132 deals (25% of APJ volume), though those deals' disclosed value totaled only \$1.9 billion. They included several cloud/SaaS deals by software development and outsourcing companies. Many of India's other deals targeted online businesses and mobile apps.
- ▶ Connected cars drove Samsung Electronics' \$8 billion deal for Harman International Industries, which has expanded from audio systems into a broad range of connected-car technologies. Samsung has identified automotive technology as a strategic growth priority.⁶ ■

174%

APJ value rose 174% to \$141.4 billion in 2016.

"APJ's extraordinary M&A growth reflects not only the innovative digital technologies of its largest tech companies, but also their global expansion plans."

Ben Kwan

Transaction Advisory Services
Technology, Media & Telecommunications (TMT)
Market Segment Leader
EY Greater China

*Asia-Pacific includes India.

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Figure 11: Top five Asia-Pacific and Japan deals (corporate and PE), 2016

Buyer	Target	Disclosed value (\$m)	Announced	Deal type	Premium offered
SoftBank Group Corporation	ARM Holdings plc	\$32,434	18 Jul	Corporate	61%
Tencent Holdings Ltd.	Supercell Oy	\$8,568	21 Jun	Corporate	N/A
Samsung Electronics Co. Ltd.	Harman International Industries Inc.	\$8,000	14 Nov	Corporate	37%
Tianjin Tianhai Investment Co. Ltd.	Ingram Micro Inc.	\$6,000	17 Feb	Corporate	43%
Canon Inc.	Toshiba Medical Systems Corporation	\$5,923	17 Mar	Corporate	N/A

Figure 12: Top five Asia-Pacific and Japan deals (corporate and PE), 4Q16

Buyer	Target	Disclosed value (\$m)	Announced	Deal type	Premium offered
Samsung Electronics Co. Ltd.	Harman International Industries Inc.	\$8,000	14 Nov	Corporate	37%
Ocean Management Holdings Ltd.	Qunar Cayman Islands Ltd.	\$4,440	19 Oct	PE	-9%
Ctrip.com International Ltd.	Skyscanner Holdings Ltd.	\$1,734	23 Nov	Corporate	N/A
HengTen Networks Group Ltd.	Shenzhen Grandland Intelligent Technology Co. Ltd.	\$719	21 Nov	Corporate	N/A
JDL Giken Yugen Kaisha	Japan Digital Laboratory Co. Ltd.	\$627	31 Oct	Corporate	64%

Figure 13: Asia-Pacific and Japan transactions scorecard, 4Q16

Deals announced	4Q15	4Q16	Sequential % change	YOY % change
Corporate				
Number of deals announced	139	102	-27% ▼	-27% ▼
Number of deals with disclosed values	71	46	10% ▲	-35% ▼
Total value of deals with disclosed values (\$m)	\$18,709	\$15,156	-67% ▼	-19% ▼
Average value of deals with disclosed values (\$m)	\$264	\$329	-70% ▼	25% ▲
PE				
Number of deals announced	5	8	14% ▲	60% ▲
Number of deals with disclosed values	5	5	0% -	0% -
Total value of deals with disclosed values (\$m)	\$9,109	\$5,368	-23% ▼	-41% ▼
Average value of deals with disclosed values (\$m)	\$1,822	\$1,074	-23% ▼	-41% ▼
Corporate and PE				
Number of deals announced	144	110	-25% ▼	-24% ▼
Number of deals with disclosed values	76	51	9% ▲	-33% ▼
Total value of deals with disclosed values (\$m)	\$27,818	\$20,525	-61% ▼	-26% ▼
Average value of deals with disclosed values (\$m)	\$366	\$402	-64% ▼	10% ▲

Note: numbers may not add to totals because of rounding.

Source: EY analysis of The 451 Group Research M&A KnowledgeBase, accessed 10 January 2017.

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Regional snapshot

Europe, the Middle East and Africa (EMEA)

EMEA volume fell in 4Q16 to the lowest level in more than two years, but value rose because of several big-ticket deals. For the year, though, both volume and value declined. Cloud/SaaS, advertising and marketing, mobility, payments, security, big data analytics and IoT drove many deals.

- ▶ EMEA full-year volume declined 4% to 873 deals. Full-year value of \$57.6 billion was 19% lower than in 2015, which included two megadeals above \$10 billion. EMEA had only 15 of 2016's record 92 global deals of \$1 billion or more.
- ▶ 4Q16 volume fell 19% YOY and 20% sequentially to 184 deals, the lowest level since 2Q14. However, 4Q16 value rose 143% YOY, propelled by three big-ticket deals totaling \$9.6 billion (see Figure 15).
- ▶ Deals by non-tech buyers accounted for 18% of 2016 EMEA volume and 28% of value. They included the \$4 billion 4Q16 purchase by German industrial automation company Siemens of US-based electronic design automation software firm Mentor Graphics. With the deal, Siemens aims to increase its capabilities in industrial software and factory automation.¹
- ▶ Big data analytics and security played roles in the year's biggest EMEA deal, the \$8.8 billion plan for HPE to spin off and merge most of its software operations into UK-based Micro Focus. The deal includes HPE products for enterprise security, big data analytics and IT operations, and will result in a combined company with approximately \$4.5 billion in revenue. It's the biggest-ever tech deal acquired by a UK firm.²
- ▶ In another top five deal, a British PE group is buying Polish online marketplace company Grupa Allegro from South Africa-based internet and entertainment company Naspers Ltd. PE buyers acquired 25% of EMEA 2016 value overall, almost twice their 13% share in 2015. UK firms accounted for 53% of the region's 2016 volume and 56% of value.
- ▶ Security deals included two with a focus on identity-management technologies, including biometrics: the pending 3Q16 French PE deal to acquire Safran Identity and Security and the 4Q16 acquisition by Dutch security technology company Gemalto of 3M's identity management business. EMEA security deals accounted for 29% of global security volume and 36% of value.
- ▶ Semiconductor deals in 2015 included the acquisition by Dutch semiconductor manufacturing equipment maker ASML of Taiwan's Hermes Microvision, which makes pattern verification systems. Another notable regional semiconductor deal was the acquisition of UK-based ARM Holdings by SoftBank Group of Japan (see page 14).
- ▶ IoT deals by EMEA buyers accounted for 24% of 2016 global IoT volume but, at \$2.4 billion, only 2% of global IoT value. Targets included semiconductor, wireless networking and device manufacturers. Connected car and telematics technologies factored into 14 EMEA deals in 2016.
- ▶ Cloud/SaaS was a factor in 28% of EMEA deals.
- ▶ EMEA buyers accounted for 35% of global big data analytics deal value.
- ▶ As is typical, UK buyers acquired the largest share of EMEA volume, with 320 deals representing 37% of the EMEA total. France accounted for 102 deals (12%), Sweden had 89 (10%) and Germany had 85 (10%). All had roughly 10 fewer deals than in 2015 except Sweden, which increased by 21 deals, or 31% more than in 2015. ■

143%

EMEA value increased 143% YOY in 4Q16 to \$14.9 billion.

"EMEA tech and non-tech companies alike are using M&A to maintain a competitive edge in global markets, focusing on key areas such as security, big data analytics, semiconductor design and IoT."

Simon Pearson

TMT Corporate Finance Leader,
United Kingdom and Ireland Region (UKI)
EY UKI

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Figure 14: Top five EMEA deals (corporate and PE), 2016

Buyer	Target	Disclosed value (\$m)	Announced	Deal type	Premium offered
Micro Focus International plc	Software business division of Hewlett Packard Enterprise	\$8,800	7 Sep	Corporate	N/A
Siemens AG	Mentor Graphics Corporation	\$4,029	14 Nov	Corporate	35%
Cinven/Permira/Mid Europa	Grupa Allegro Sp. z o.o.	\$3,253	14 Oct	PE	N/A
ASML Holding NV	Hermes Microvision Inc.	\$3,087	16 Jun	Corporate	32%
Bpifrance Investissement/Advent International Corporation	Safran's Identity and Security businesses (Safran I&S)	\$2,726	29 Sep	PE	N/A

Figure 15: Top five EMEA deals (corporate and PE), 4Q16

Buyer	Target	Disclosed value (\$m)	Announced	Deal type	Premium offered
Siemens AG	Mentor Graphics Corporation	\$4,029	14 Nov	Corporate	35%
Cinven/Permira/Mid Europa	Grupa Allegro Sp. z o.o.	\$3,253	14 Oct	PE	N/A
BC Partners/Medina Capital/Longview Asset Management	Data centers and colocation business of CenturyLink Inc.	\$2,300	4 Nov	PE	N/A
ams AG	Heptagon Micro Optics Pte Ltd.	\$919	24 Oct	Corporate	N/A
Gemalto NV	Identity management business of 3M Co.	\$850	9 Dec	Corporate	N/A

Figure 16: EMEA transactions scorecard, 4Q16

Deals announced	4Q15	4Q16	Sequential % change	YOY % change
Corporate				
Number of deals announced	203	161	-20% ▼	-21% ▼
Number of deals with disclosed values	43	39	-35% ▼	-9% ▼
Total value of deals with disclosed values (\$m)	\$3,258	\$9,226	-48% ▼	183% ▲
Average value of deals with disclosed values (\$m)	\$76	\$237	-20% ▼	212% ▲
PE				
Number of deals announced	25	23	-21% ▼	-8% ▼
Number of deals with disclosed values	6	5	-17% ▼	-17% ▼
Total value of deals with disclosed values (\$m)	\$2,886	\$5,715	8% ▲	98% ▲
Average value of deals with disclosed values (\$m)	\$481	\$1,143	29% ▲	138% ▲
Corporate and PE				
Number of deals announced	228	184	-20% ▼	-19% ▼
Number of deals with disclosed values	49	44	-33% ▼	-10% ▼
Total value of deals with disclosed values (\$m)	\$6,144	\$14,942	-35% ▼	143% ▲
Average value of deals with disclosed values (\$m)	\$125	\$340	-3% ▼	172% ▲

Note: numbers may not add to totals because of rounding.

Source: EY analysis of The 451 Group Research M&A KnowledgeBase, accessed 10 January 2017.

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Sector snapshot

Communications equipment

While CE companies provide key foundational infrastructure for the digital transformations sweeping through the global economy, the end of the smartphone growth era and continued stagnation in telecommunications carrier capital expenditure (capex) budgets contributed to a lackluster year for CE dealmaking. Volume slipped slightly and aggregate disclosed value fell by half.

- ▶ The heady smartphone shipment growth of recent years fell to less than 1% in 2016.¹ Meanwhile, telecom carrier capex budgets languished as “4G” rollouts wound down, and the next major build out – “5G” – is not expected to drive capex growth until 2019 or 2020.² In 2015, intensifying global competition from similar pressures resulted in CE consolidation that included a \$16.5 billion megadeal, but 2016 was quieter.
- ▶ CE companies managed to acquire only 12% of the disclosed value sold by subsector peers, down from 70% in 2015.
- ▶ The largest share of CE target value (32%) was acquired by the semiconductor subsector, mostly in one deal: Broadcom-Brocade, the year’s highest-value CE deal. Besides broadening its storage networking solutions beyond chips to enterprise systems, the deal should lower Broadcom’s reliance on smartphone chips.³ But it will likely cause the divestment of Brocade’s \$1.5 billion deal for Ruckus Wireless, as Ruckus’ IP networking technology competes with some Broadcom customers.⁴ That deal was completed just before Broadcom’s bid.
- ▶ About 22% of CE target value (\$3.9 billion) was acquired by non-technology companies, mostly by telecommunications companies acquiring infrastructure technology – as exemplified by the Crown Castle-FPL FiberNet deal in Figure 17, below.
- ▶ PE firms acquired 14% (\$2.5 billion), mostly in the Polycom deal for videoconferencing systems, shown below. Other PE deals targeting CE also focused on videoconferencing systems, as well as fiber and other telecom infrastructure.
- ▶ CE companies were targeted in only eight security deals, but the largest made it to the top five for the year (see Figure 17).
- ▶ After Brocade-Ruckus, the largest deal with a CE buyer was Cisco Systems, Inc.’s \$1.4 billion deal for Jasper Technologies, whose IoT software helps enterprises connect and monitor cars, jet engines, manufacturing equipment and heart pacemakers, among other devices.⁵ The deal moves Cisco further up the stack toward end-to-end IoT solutions. CE buyers acquired 19 IoT targets in all, with combined disclosed value of \$2.3 billion.
- ▶ In all, volume of CE-targeted deals fell (for the second consecutive year) to 103 deals, down 13%; 26 deals came in 4Q16. Aggregate value of CE targets with disclosed values fell to \$17.5 billion in 2016, down 55%; it included \$8.7 billion in 4Q16. CE had 5 of 2016’s 92 deals of \$1 billion or more. CE had the fewest divestitures of any subsector, roughly 20 deals and a little more than \$2 billion in aggregate value. ■

\$17.5b

2016 aggregate value of CE targets fell 55% to \$17.5 billion.

Figure 17: Top five communications equipment deals, 2016

Buyer	Target	Disclosed value (\$m)	Announced	Deal type	Premium offered
Broadcom Ltd.	Brocade Communications Systems Inc.	\$5,500	2 Nov	Corporate	38%
Siris Capital Group LLC	Polycom Inc.	\$2,000	15 Apr	PE	6%
Crown Castle International Corporation	FPL FiberNet Holdings LLC	\$1,500	1 Nov	Corporate	N/A
Brocade Communications Systems Inc.	Ruckus Wireless Inc.	\$1,500	4 Apr	Corporate	47%
Guangdong Nanyang Cable Group Holding Co. Ltd.	Beijing Topsec Network Security Technology Co. Ltd.	\$1,057	2 Aug	Corporate	N/A

Source: EY analysis of The 451 Group Research M&A KnowledgeBase, accessed 10 January 2017.

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Sector snapshot

Computers, peripherals and electronics

The transformational cloud- and storage-driven megadeals that helped CPE aggregate value soar to \$120.3 billion in 2015 were absent in 2016. Instead, 2016 CPE dealmaking was shaped by new rising trends, most notably IoT, connected cars, security, robotics, divestitures and growing blur from non-tech buyers – particularly in China.

- ▶ In terms of deal-driving trends, IoT drove the most CPE disclosed value during 2016, including the largest CPE deal of the year: Samsung Electronics' \$8 billion 4Q16 deal for Harman, the audio equipment supplier that recently expanded into a broad range of connected-car technologies. In all, there were 88 IoT CPE deals with disclosed value of \$15.3 billion, accounting for 28% of subsector volume and 22% of value.
- ▶ Those IoT deals included 14 focused on connected-car technologies, targeting autonomous driving, driver behavior sensing and vehicle-tracking technologies, among others. They accounted for \$8.8 billion of the IoT CPE value.
- ▶ Non-tech buyers acquired \$22 billion, or 31%, of full-year CPE value – including the second and fourth deals shown in the chart below. The largest was by a unit of China's diversified HNA Group, which offered \$6 billion for US-based Ingram Micro, a technology distributor that also operates some tech companies' supply chains.¹
- ▶ Midea-KUKA also had a non-tech Chinese buyer. The household appliance maker acquired a German provider of advanced robotics technology in an effort to improve its manufacturing operations and expand into robots, automation equipment and smart home devices.² Overall, Chinese buyers acquired \$20.2 billion of CPE disclosed value, including \$15.2 billion by non-tech buyers.
- ▶ In rare cases, blur goes the other way: a tech company buys a non-tech target. There were 23 such deals across all sectors in 2016, just 0.6% of global volume – but one of those deals was among CPE's top five. The HIT-driven deal for Toshiba Medical Systems diversifies Canon into medical equipment, including MRI and CT machines, as the camera industry declines.³
- ▶ Divestitures accounted for nearly 60 CPE deals, with aggregate disclosed value of about \$14 billion. The largest is shown in the chart below: a \$4 billion PE deal for Emerson Electric's data center power management unit.
- ▶ Another divestiture taken private by PE was Safran SA's Safran Identity and Security business (\$2.7 billion). It was the largest of 34 CPE deals driven by different security technologies, with total value of \$6.5 billion. Many also focused on identify management systems, including biometrics.
- ▶ In all, CPE value plummeted to \$13.9 billion in 4Q16 from \$94.2 billion in 4Q15. For the year, it declined 41% to \$71.4 billion. In 2016, CPE's 312 deals were 1 shy of 2015's amount. CPE had 20 of 2016's 92 deals of \$1 billion or more. ■

31%

Non-tech buyers acquired \$22 billion (31%) of 2016 disclosed value for CPE targets.

Figure 18: Top five computers, peripherals and electronics deals, 2016

Buyer	Target	Disclosed value (\$m)	Announced	Deal type	Premium offered
Samsung Electronics Co. Ltd.	Harman International Industries Inc.	\$8,000	14 Nov	Corporate	37%
Tianjin Tianhai Investment Co. Ltd.	Ingram Micro Inc.	\$6,000	17 Feb	Corporate	43%
Canon Inc.	Toshiba Medical Systems Corporation	\$5,923	17 Mar	Corporate	N/A
Midea Group Co. Ltd.	KUKA AG	\$4,747	18 May	Corporate	23%
Platinum Equity LLC	Network power business from Emerson Electric Company	\$4,000	2 Aug	PE	N/A

Source: EY analysis of The 451 Group Research M&A KnowledgeBase, accessed 10 January 2017.

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Sector snapshot

Internet

The digital transformation that social networking and e-commerce are causing in business and society helped drive internet deal value in 2016, even as volume shrunk. Soaring PE value – more than half from Chinese firms – also contributed. Many deals targeted mobility, advertising and marketing, gaming, payments and financial services, and online video.

- ▶ Microsoft’s megadeal for LinkedIn was valued at more than the entire YOY increase in disclosed value of internet targets. It brings multiple internet technologies, as well as data troves on hundreds of millions of professionals, globally.¹ The deal accounts for 35% of 2016 internet disclosed value; it led software/SaaS companies to capture 37% overall, more than any other subsector.
- ▶ PE firms captured 33% (\$24.4 billion) of the subsector’s disclosed value for the year, up from \$3.4 billion in 2015. China-based PE buyers posted \$13.3 billion of the total (up from \$1.2 billion), including three of the top five deals shown below. Two are domestic e-commerce businesses: Qunar in travel and Autohome in automobiles. Playtika is an Israeli mobile casino-style gaming company divested by US-based Caesars Interactive Entertainment.
- ▶ Overall, China buyers acquired \$20.3 billion in internet targets (27%), \$13 billion domestically and \$7.3 billion CB (see Cross-border value flow, page 24).
- ▶ Non-tech buyers acquired 120 internet companies and \$13.2 billion, or 18%, of 2016 internet value. Though non-tech buyers bought 90 advertising and marketing targets, only 7 were internet companies – but the \$4.8 billion Verizon-Yahoo! deal seen below was among them, as Verizon continues diversifying into online advertising technology and revenue streams. In all, there were 39 advertising and marketing deals, with disclosed value of \$6.5 billion.
- ▶ More than 80 deals were hidden gems – divestitures. They had disclosed value of about \$17 billion, including the Playtika deal and Verizon-Yahoo! (technically a divestiture because a publicly traded investment company will remain after the deal closes²).
- ▶ Mobile technology touched on 72 internet deals with \$7.9 billion in disclosed value; gaming had 38 deals and \$4.8 billion; big data analytics, 43 deals and \$3.8 billion; payments and financial services technologies, 44 deals and \$1.1 billion; and online video also was targeted in 38 internet deals, but with combined disclosed value of only \$149 million.
- ▶ In all, 2016 saw 539 deals target internet companies, down 18%; and \$74.9 billion in disclosed value, up 33%. Of this, 128 deals (24%) and \$13.1 billion (18%) came in 4Q16. Internet had 16 of 2016’s 92 deals of \$1 billion or more. ■

51%

Together, PE (33%) and non-tech buyers (18%) captured 51% of internet-targeted disclosed value of \$74.9 billion.

Figure 19: Top five internet deals, 2016

Buyer	Target	Disclosed value (\$m)	Announced	Deal type	Premium offered
Microsoft Corporation	LinkedIn Corporation	\$26,200	13 Jun	Corporate	54%
Verizon Communications Inc.	Operating business of Yahoo! Inc.	\$4,830	25 Jul	Corporate	N/A
Ocean Management Holdings Ltd.	Qunar Cayman Islands Ltd.	\$4,440	19 Oct	PE	-9%
Giant Investment and consortium of investors	Playtika Ltd.	\$4,400	30 Jul	PE	N/A
Hillhouse Capital Management, Ltd./ Sequoia Capital China/Boyu Capital Consultancy Co. Ltd.	Autohome Inc.	\$3,570	18 Apr	PE	12%

Source: EY analysis of The 451 Group Research M&A KnowledgeBase, accessed 10 January 2017.

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Sector snapshot

IT services

IT services was the only subsector besides semiconductors to capture more than half its own targeted disclosed value, as “spin-mergers,” divestitures and data center consolidation deals dominated 2016 dealmaking. PE and non-tech buyers acquired almost all the rest.

- ▶ Four of the top five deals shown in Figure 20, below, were hidden gems – divested businesses likely more valuable with a new strategic owner. Overall, there were approximately 150 divestitures among IT services targets, with total disclosed value of nearly \$24 billion (42% of all IT services disclosed value, and more than any other subsector).
- ▶ The subsector’s top deal was HPE’s first of two 2016 spin-mergers: it divested the Enterprise services division into a 50-50 joint venture with Computer Sciences. The deal enables HPE to sharpen its focus on “end-to-end infrastructure solutions necessary to power the enterprise cloud and mobility.”¹ Also in 2Q16, HPE divested its majority share in India-based IT services firm Mphasis Ltd. to a PE firm in an \$825 million deal.
- ▶ The second-largest deal was Lockheed Martin’s spin-off of its information systems unit to Leidos, creating the largest pure-play government IT provider by revenue.² Lockheed shareholders will own 50.5% of Leidos after the deal.
- ▶ Dell Services (formerly Perot Systems) was divested to NTT Data’s North American unit, which brings strategic geographic expansion for NTT Data’s Japanese parent.
- ▶ Verizon’s divestiture to Equinix of 29 data centers and Rackspace’s privatization were merely the largest of several hundred cloud-related deals in which data center assets were acquired, divested, consolidated or traded. Within those deals was a sub-trend in which telecommunications carriers such as Verizon exited the cloud data center business after entering it through M&A a few years ago. Another example in 4Q16 was CenturyLink’s \$2.3 billion divestiture of its colocation business – the former Savvis Inc., acquired in 2011. In all, PE firms acquired 26% (\$14.8 billion) and non-tech buyers acquired 12% (\$6.9 billion).
- ▶ IT services M&A encompassed many deal-driving trends, often touching on two or more in a deal. There were 282 cloud/SaaS-related deals, with disclosed value of \$22.8 billion; big data analytics posted 74 deals, and \$8 billion in total value; HIT, 53 deals and \$5.1 billion; payments and financial services, 63 deals and \$6.2 billion; security, 95 deals and \$9.4 billion; and advertising and marketing had 210 deals and \$6.6 billion in value.
- ▶ In all, 1,065 deals targeted IT services (up 2% over 2015), with aggregate value of \$56.9 billion (also up 2%). Of that volume, 24% (251 deals) came in 4Q16, as did 32% of the value (\$18.4 billion). IT services had 13 of 2016’s 92 deals of \$1 billion or more. ■

\$23.7b

Divestitures accounted for \$23.7 billion (42%) of all 2016 IT services disclosed value (\$56.9 billion) – more than in any other subsector.

Figure 20: Top five IT services deals, 2016

Buyer	Target	Disclosed value (\$m)	Announced	Deal type	Premium offered
Computer Sciences Corporation	Enterprise services division of Hewlett Packard Enterprise	\$6,000	24 May	Corporate	N/A
Leidos Holdings Inc.	Information Systems & Global Solutions business assets of Lockheed Martin Corporation	\$5,000	26 Jan	Corporate	N/A
Apollo Global Management LLC	Rackspace Hosting, Inc.	\$4,343	26 Aug	PE	37%
Equinix Inc.	29 data centers of Verizon Communications Inc.	\$3,600	6 Dec	Corporate	N/A
NTT DATA Inc.	Dell Services (an IT services provider of Dell Inc.)	\$3,055	28 Mar	Corporate	N/A

Source: EY analysis of The 451 Group Research M&A KnowledgeBase, accessed 10 January 2017.

Sector snapshot

Semiconductors

Semiconductor targets set a new aggregate value record of nearly \$125 billion in 2016, as IoT- and automobile-driven dealmaking that arose in 2015 gained momentum. Three of the year's four megadeals above \$10 billion were between semiconductor companies – and it's likely such big-bet semiconductor deals will continue in 2017.

- ▶ IoT networks help drive the stack-to-solution trend in which tech companies assemble broad portfolios of related products to meet customer demand for complete solutions. Qualcomm's 4Q16 bid for Netherlands' NXP – the highest-value semiconductor deal ever – exemplifies the trend. It brings together mobile, security and networking technologies tailored for use in IoT, automobiles – or both, as in advanced driver-assistance systems (ADAS).
- ▶ Non-tech buyer SoftBank Group called its \$32.4 billion deal for ARM a "paradigm shift" at the Japanese company to invest in IoT.¹ ARM, best known for the microprocessors that power most smartphones, had been diversifying into IoT (including security) through multiple acquisitions in the past two years.
- ▶ IoT drove 24 semiconductor deals overall, with combined disclosed value of \$81.2 billion – 65% of the subsector's aggregate value. Of those, seven targets with aggregate value of \$44.3 billion included connected-car technologies. Two IoT deals not focused on connected cars also topped \$1 billion, including one for micro-electromechanical systems (MEMS) technology used for motion sensing mobile applications and another that focused on microcontrollers and wireless connectivity chips.
- ▶ The third megadeal was between analog chip companies. By combining its strengths in data converters with Linear Technology's power-management chips, Analog Devices is targeting growth opportunities in industrial, automotive and communications infrastructure.^{2,3} Analog Devices did acquire IoT-related technologies in at least three other deals, including one involving laser steering technology for ADAS.
- ▶ Rounding out the top five were non-tech life sciences company Thermo Fisher Scientific's deal for FEI, which brings it semiconductor testing equipment, and a merger of two Taiwanese chip-packaging companies, Advanced Semiconductor Engineering and Siliconware Precision Industries.
- ▶ Divestitures totaled only about \$6 billion; the largest was a Chinese PE group's \$1.5 billion deal for the Standard Products business of NXP.
- ▶ In all, 114 deals targeted semiconductors in 2016, down 3 deals from 2015. Aggregate value rose 21% to \$124.9 billion. Only 22% of that volume (25 deals) came in 4Q16, but 4Q16 value more than doubled YOY to \$44.1 billion. Semiconductors had 11 of 2016's 92 deals of \$1 billion or more. ■

\$124.9b

Semiconductors' foundational role in IoT helped propel 21% aggregate value growth to \$124.9 billion in 2016.

Figure 21: Top five semiconductor deals, 2016

Buyer	Target	Disclosed value (\$m)	Announced	Deal type	Premium offered
Qualcomm Incorporated	NXP Semiconductors NV	\$39,187	27 Oct	Corporate	33%
SoftBank Group Corporation	ARM Holdings plc	\$32,434	18 Jul	Corporate	61%
Analog Devices Inc.	Linear Technology Corporation	\$14,880	26 Jul	Corporate	32%
Thermo Fisher Scientific Inc.	FEI Company	\$4,392	27 May	Corporate	18%
Advanced Semiconductor Engineering Inc.	Siliconware Precision Industries Co. Ltd.	\$4,335	26 May	Corporate	10%

Source: EY analysis of The 451 Group Research M&A KnowledgeBase, accessed 10 January 2017.

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Sector snapshot

Software/SaaS

Digital technology transformation and disruption are perhaps nowhere more apparent than in 2016's software/SaaS M&A. Tech incumbents pursued cloud- and mobile-driven transformation of their own businesses, made deals to better position for customers' digital transformations – or were taken private to pursue their transformations away from public market scrutiny. Divestitures helped companies refocus, and put hidden gems into more strategic hands; and non-tech buyers acquired technologies to assist with their own transformations.

- ▶ Aggregate 2016 value rose 43% to \$120.9 billion, but the subsector was still overshadowed by semiconductors' \$124.9 billion. It's the second year in which software/SaaS did not have the top subsector value, after five years of being No. 1.
- ▶ Cloud/SaaS-driven transformation was exemplified by the top software/SaaS deal of the year, shown in the chart below: Oracle-NetSuite, by which Oracle aims to accelerate its transition to cloud computing. Cloud technology was a factor driving nearly 60% of software/SaaS volume.
- ▶ Mobility technologies helped drive roughly 25% of deals, including Tencent's bid for Finland's mobile game developer Supercell from Japan's SoftBank Group and Supercell employees.
- ▶ The second-largest software/SaaS deal of the year was the spin-merger of HPE's business software division to UK-based Micro Focus. The deal is a classic example of our hidden gems¹ theme. While HPE viewed the software division as non-core, MicroFocus orients its business around helping enterprises extend the life of older systems, including integration with new technologies.² We counted about 225 software/SaaS divestitures overall, with total value of nearly \$18 billion.
- ▶ Cybersecurity's growing importance was exemplified by Symantec's \$4.7 billion deal for Blue Coat Systems. As part of its ongoing transformation beyond PC software, Symantec also offered \$2.3 billion in 4Q16 for identity-theft protection company LifeLock. In all, security drove nearly 125 deals.
- ▶ Nearly half of 2016's PE volume targeted software/SaaS, with \$30.3 billion in aggregate value including 10 deals above \$1 billion. Largest was the privatization of ERP and CRM supplier Epicor Software Corporation (\$3.3 billion). Also notable was the divestiture of Intel Security (formerly known as McAfee).
- ▶ Non-tech buyers acquired 176 software/SaaS targets, topped by Siemens' 4Q16 deal for electronic design automation firm Mentor Graphics. The acquisition will be part of Siemens' Digital Factory unit, which helps industrial companies accelerate digital transformation.
- ▶ Software/SaaS had the most deals of any subsector: 1,663, down 5% from 2015. Of those, 335 (20%) came in 4Q16, as did \$19.1 billion (16%) of value. Software/SaaS had more deals of \$1 billion or more than any other subsector – 27 in total. ■

\$120.9b

Aggregate value of deals targeting software/SaaS jumped 43% to \$120.9 billion in 2016.

Figure 22: Top five software/SaaS deals, 2016

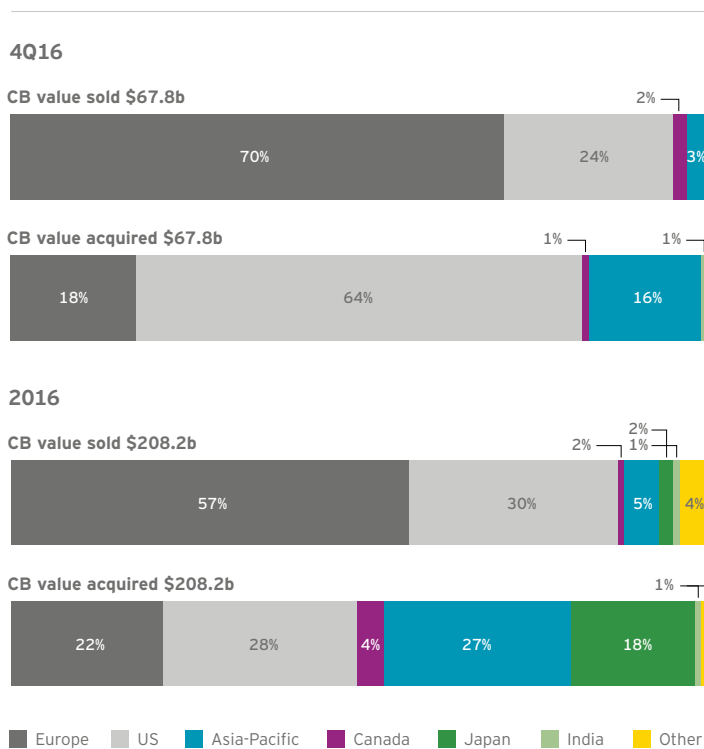
Buyer	Target	Disclosed value (\$m)	Announced	Deal type	Premium offered
Oracle Corporation	NetSuite Inc.	\$9,300	28 Jul	Corporate	58%
Micro Focus International plc	Software business division of Hewlett Packard Enterprise	\$8,800	7 Sep	Corporate	N/A
Tencent Holdings Ltd.	Supercell Oy	\$8,568	21 Jun	Corporate	N/A
Symantec Corporation	Blue Coat Systems, Inc.	\$4,650	12 Jun	Corporate	N/A
Siemens AG	Mentor Graphics Corporation	\$4,029	14 Nov	Corporate	35%

Source: EY analysis of The 451 Group Research M&A KnowledgeBase, accessed 10 January 2017.

Cross-border value flow

Soaring CB value helps fuel 2016 global record

Figure 23: Cross-border deal value flow for technology deals (disclosed value), 4Q16 and 2016



Note: percentages may not total to 100% because of rounding.

Source: EY analysis of The 451 Group Research M&A KnowledgeBase, accessed 10 January 2017.

Megadeals drove CB deal value to a record-shattering year in 2016, more than compensating for declining in-border (IB) deal value. The largest CB buyers by dollar value sought to position for future strategic growth technologies – particularly in IoT. US buyers dominated 4Q16 CB value and continued to acquire more CB value than any other single country on an annualized basis. But US companies were a bigger target in 2016.

- ▶ 4Q16 aggregate CB value of \$67.8 billion was up 147% YOY and would have been a new record except for 3Q16's \$80.8 billion. Full-year aggregate value of \$208.2 billion set a new annual record, up 63% YOY. Of the 92 deals of \$1 billion or more in 2016, 37 were CB deals.
- ▶ Due to significant 2016 increases in CB value from China (mainland), Japan, South Korea and Taiwan, the APJ region (Asia-Pacific plus Japan) more than tripled its share of CB value in 2016 to 45% from an average of 14% for the past three years.
- ▶ US buyers acquired 64% (\$43.4 billion) of 4Q16 CB value. Ninety percent of the US value came in one deal: the \$39.2 billion Qualcomm-NXP megadeal. For the year, US buyers acquired \$57.5 billion in CB value, up 42% from 2015.
- ▶ US companies were targeted in \$16.6 billion in 4Q16 CB deals, including three of the seven CB deals that topped \$1 billion. That's down from a \$29.9 billion peak in 3Q16. The full-year value of US CB targets rose 51% to \$62.1 billion, with China acquiring the largest share (\$14.1 billion, or 23%), followed by the UK (\$12.8 billion), Canada (\$8.2 billion), South Korea (\$8 billion) and Germany (\$5.9 billion).
- ▶ European companies acquired 41% (\$25.4 billion) of the 2016 US value sold, far more than the 12% of value they acquired across Europe's own borders (\$14.4 billion).
- ▶ China's 2016 CB value rose nearly five times to \$42.8 billion from \$9.2 billion in 2015. China's all-deal value rose "only" 82% in 2016, so CB's share increased to 59% of China's \$72.4 billion total 2016 value from 23% in 2015. But China's CB deal value declined in 4Q16, when it posted only \$2.4 billion, perhaps in reaction to the Chinese Government's growing concern over capital outflows and other governments' increasing deal scrutiny.¹
- ▶ After the US and China, the remainder of the top five 2016 CB buyers by value were Japan (\$36.9 billion), the UK (\$19.4 billion) and Canada (\$8.6 billion). Japan more than quintupled its 2015 total, due to the SoftBank Group-ARM megadeal.
- ▶ Including the top two megadeals, CB value from IoT targets amounted to \$89.7 billion, or 43% of the year's total CB value. ■

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Figure 24: Global corporate and PE deals by acquiring country: cross-border and in-border, 4Q16

Corporate deals					4Q16				
Top countries	4Q15 deals		4Q16 deals	% total deals	No. IB deals	0%	50%	100%	No. CB deals
US	483		455	61%	355				100
UK	67		49	7%	28				21
China/HK	46		34	5%	23				11
Canada	33		27	4%	6				21
France	28		21	3%	12				9
India	41		19	3%	13				6
Sweden	17		17	2%	4				13
Australia	21		15	2%	11				4
Ireland	8		14	2%	1				13
Germany	25		12	2%	4				8
Other	93		85	11%	34				51
Total	862		748	100%	491				257

PE deals					4Q16				
Top countries	4Q15 deals		4Q16 deals	% total deals	No. IB deals	0%	50%	100%	No. CB deals
US	38		63	66%	53				10
UK	11		15	16%	5				10
China/HK	4		6	6%	4				2
Sweden	4		2	2%	0				2
Canada	2		2	2%	1				1
Other	11		8	8%	5				3
Total	70		96	100%	68				28

At 285 deals in 4Q16, CB volume (combined corporate and PE) hit its lowest level in nearly three years – since 1Q14 (231 deals). It was the first quarter since then to dip below 300 deals.

The entire 7% global tech M&A sequential volume decline (see Figure 4, page 4) from the third to the fourth quarter came from CB volume, which fell by 69 deals. In-border (IB) deals actually increased by two from 3Q16 to 4Q16. That reversed the roles CB and IB played in the 12% 2Q16-to-3Q16 decline, when IB deals fell by 139 and CB deals rose by 11. Geopolitical uncertainty regarding the future of globalization may have played a role in the fourth-quarter decline.

On a percentage basis, the overall sequential CB volume decline of 19% split relatively evenly between corporate and PE dealmakers, with corporate falling 19% (61 deals) and PE falling 22% (8 deals). As always, the US had the largest number of CB deals; its volume held fairly steady, falling by only 3 deals to 110 (combined corporate and PE). The countries with the largest combined corporate and PE sequential declines were the UK (16 deals), France (13), Australia (8), Germany (7), and China and Sweden, which each fell by 4 deals. Canada was even with 3Q16, while India increased by 2 deals and Ireland by 3.

Annualized, the leading 2016 CB dealmakers by volume were the US (485), the UK (155), Canada (96), Sweden (71) and China (63). The top three all posted similar numbers as in 2015, but Sweden increased 34% and China soared 91%. They displaced France and Germany from the top 5; those countries posted 61 and 50 deals, respectively, similar to their 2015 numbers.

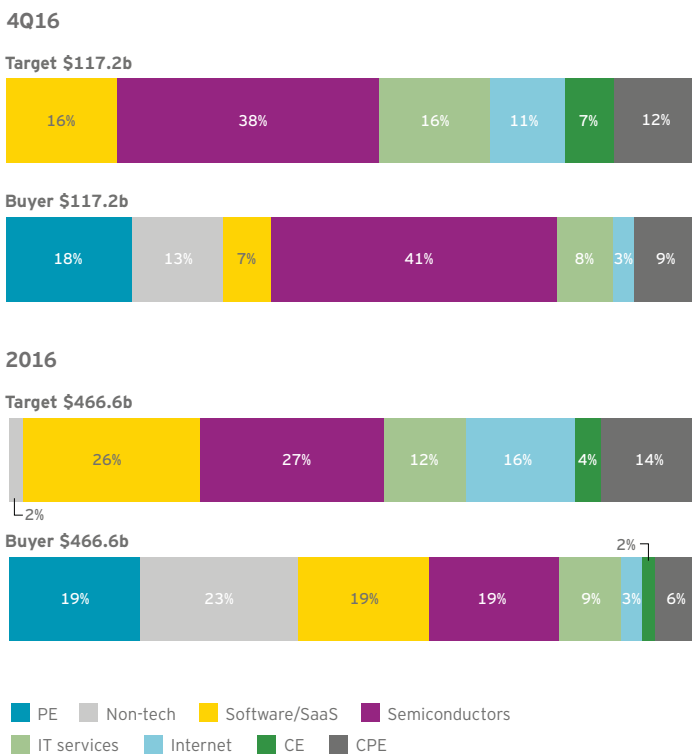
Note: percentages may not total to 100% because of rounding.

Source: EY analysis of The 451 Group Research M&A KnowledgeBase, accessed 10 January 2017.

Transaction value flow by sector

Cross-industry blur accelerates again in 2016

Figure 25: Global technology transactions value flow by sector, 4Q16 and 2016



CE = Communications equipment CPE = Computers, peripherals and electronics

Note: percentages may not total to 100% because of rounding.

Source: EY analysis of The 451 Group Research M&A KnowledgeBase, accessed 10 January 2017.

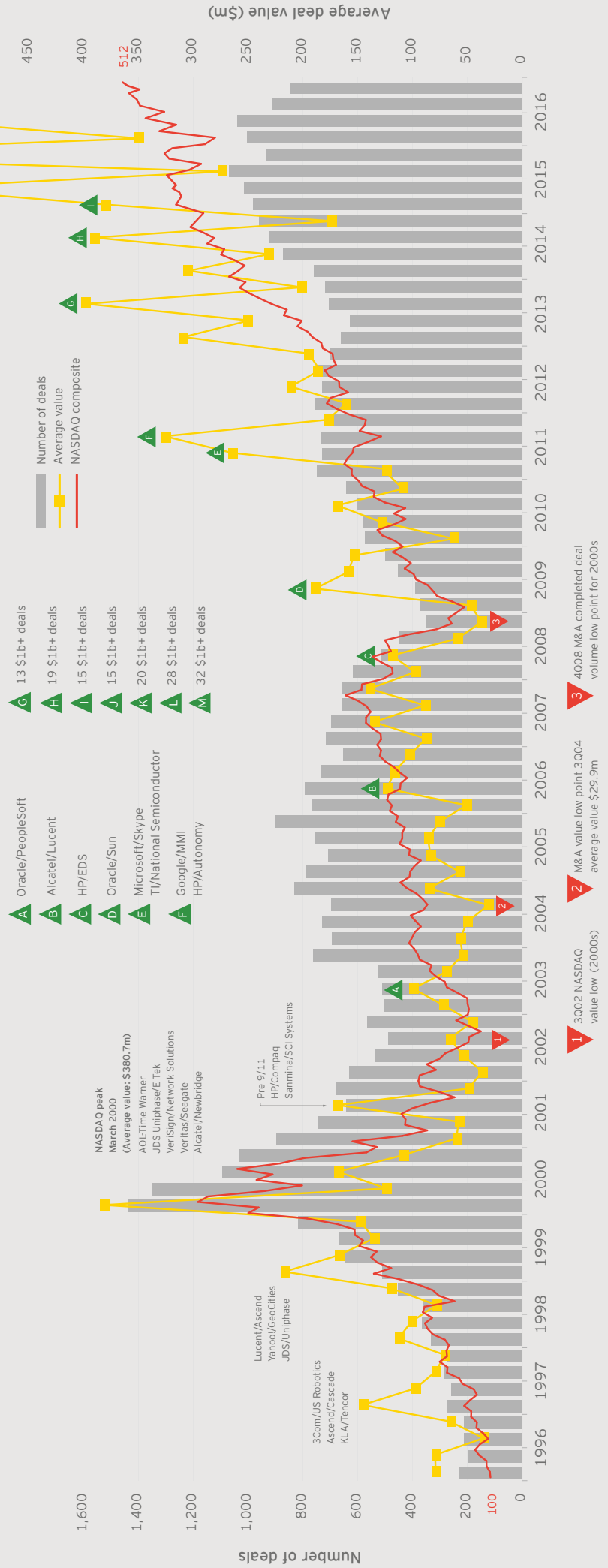
Non-technology company buyers more than doubled their disclosed value of global tech M&A for the second consecutive year in 2016, helping to drive the year's new all-time aggregate value record even as incumbent tech company buyers declined. PE buyers also contributed to the record, with rising value of their own. The changing composition of technology buyers reflects rapidly growing cross-industry blur between tech and other industries, as non-tech companies undergoing digital transformation acquire strategic technologies.

- ▶ Non-tech buyers posted their lowest value of the year in 4Q16 (\$14.7 billion). But it still was a 124% increase over 4Q15 and pushed them to \$107.9 billion in aggregate disclosed value for the year, up 101% over \$53.6 billion in 2015. PE buyers' aggregate value rose by 61% for the year, while tech company buyers fell 23%. Consequently, the joint share of total value acquired by PE and non-tech companies rose to 42% in 2016 from 24% in 2015.
- ▶ Tech company buyers did have their highest-value quarter of the year in 4Q16 (\$81.6 billion), but that still fell by slightly more than 50% from \$164.7 billion in 4Q15 because of the prior quarter's three megadeals – including one valued at \$67 billion.
- ▶ Non-tech buyers spent the most (and had the biggest increase) in the semiconductor subsector, though their disclosed values rose for every subsector except IT services. Full-year non-tech-buyer aggregate value targeting semiconductors was \$39.6 billion, thanks to the \$32.4 billion SoftBank Group-ARM deal in 3Q16. That amount was 37% of 2016 non-tech-buyer value, compared with only 1% in 2015.
- ▶ Software/SaaS was 2016's second-highest non-tech-buyer target, with 21% of their disclosed value (\$22.2 billion). CPE targets accounted for a 20% share; internet, 12%; IT services, 6%; and CE, 4%.
- ▶ While each tech industry subsector historically acquired 80% or more of the disclosed value targeted in that subsector, that's changed in the last few years. In 2016, only semiconductor and IT services companies managed to acquire more than half the value sold in their subsectors (62% and 55%, respectively). CE and internet companies managed only 12% each.
- ▶ PE buyers, meanwhile, mainly focused on software/SaaS and internet targets, which together accounted for 61% of PE's \$90.1 billion in 2016 aggregate value.
- ▶ The biggest cross-subsector buyers were software/SaaS, which acquired 37% of the internet value sold, and semiconductors, which acquired 32% of the CE value sold. ■

■ Figure 26: Historical view of technology M&A activity and NASDAQ Composite Index, 1996-2016

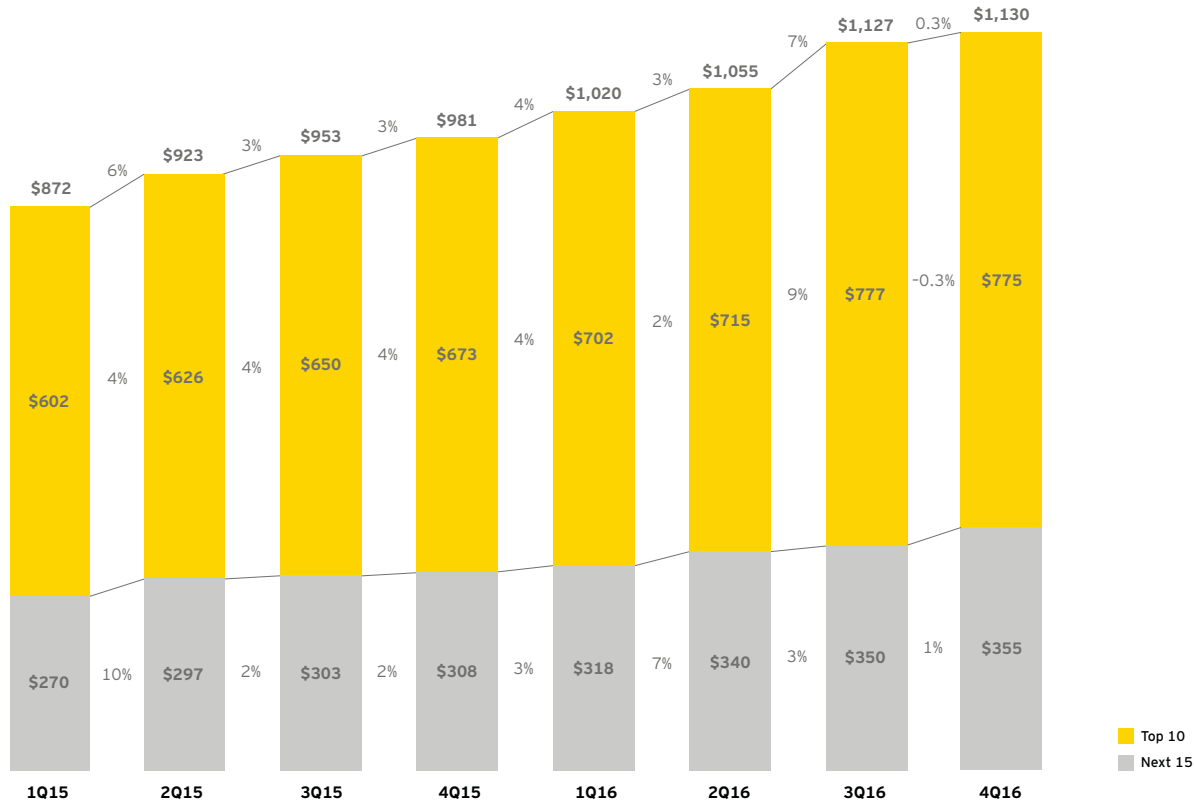
This chart shows the striking historical synchronicity with which the volume of corporate global technology deals per quarter has risen and fallen together with the NASDAQ Composite Index over the past 21 years. The average quarterly transaction value (of completed deals with disclosed values) also historically moved in synchronization with the NASDAQ, though in recent years megadeals have skewed average value to the high side. This shows the influence – both rational and psychological – that macroeconomic factors hold over technology industry M&A activity.

But in the past several years, M&A deal volume and the NASDAQ appear to be moving further apart. Since 2012, the NASDAQ was up 78% and M&A deal volume was up 29% at the end of 4Q16, compared with 4Q12 (when the chart's red NASDAQ line began rising above the gray volume bars). While deal volume appeared to be catching up with the NASDAQ in 2015 and the first half of 2016, it fell in the last two quarters of 2016 while the NASDAQ rose by 10% and 1% in those quarters. Looking at 2016 only, the NASDAQ rose 8% for the year while M&A volume declined 5%. The M&A volume decline was all in the second half and may have been reacting to the NASDAQ's early 2016 decline – it fell for two successive quarters and was down 3% YOY at the end of 2Q16.



Note: we overlaid the indexed NASDAQ composite on this chart tracking completed deal activity and value (1996-2008). Since 2008, we are showing announced deals less canceled deals to correspond to the deals we have published. To show correlation between the NASDAQ and technology industry M&A activity, we aligned the index starting point of 100 on the deals axis.
 Source: EY's analysis of Capital IQ and The 451 Group data, accessed 10 January 2017, and NASDAQ Composite Index from Capital IQ, accessed 20 January 2017.

■ Figure 27: Aggregate cash and short- and long-term investments for the top 25 technology companies, 1Q15-4Q16 (\$b)



The aggregate cash stockpile for the top 25 global technology companies topped \$1 trillion for the first time ever early in 2016 and continued rising all year, though it slowed in the fourth quarter. At \$1.13 trillion, the combined cash and short- and long-term investments of the top 25 rose 15% YOY as of the end of 4Q16, which was consistent with last year's 16% YOY growth at the end of 4Q15. Sequential growth of the top 10 companies, which was the same 4% in every quarter of 2015, became more volatile in 2016 and ended with a slight decline in 4Q16 from 3Q16. The top 10 companies accounted for 69% of the 4Q16 total.

Source: EY analysis of Capital IQ data, accessed 2 February 2017.

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Methodology

- ▶ *Global technology M&A update: October-December 2016 and year in review* is based on EY's analysis of The 451 Group M&A KnowledgeBase data for 2015 and 2016. Deal activity and valuations may fluctuate slightly based on the date the database is accessed.
- ▶ Technology company M&A data was pulled from The 451 Group M&A KnowledgeBase based on the database's own classification taxonomy and then deals were aligned to the following sectors: CE, CPE, semiconductors, software/SaaS, IT services and internet companies. Alignment was based on the sector of the target company.
- ▶ The data includes M&A transactions between two technology companies as well as non-technology companies acquiring technology companies.
- ▶ Joint ventures were not included.
- ▶ Corporate M&A activity data was analyzed based on the sector classification of the target company. Prior to 2012, we reported based on the classification of the acquiring company; the change enables a clearer picture of the technologies being focused on for acquisition.
- ▶ Equity investments that involved less than a 50% stake were not included in the data.
- ▶ PE M&A activity includes both full and partial stake transactions in excess of 50% and was analyzed based on acquisitions by firms classified as private equity, sovereign wealth funds, investment holding companies, alternative investment management groups, certain commercial banks, investment banks, venture capital and other similar entities.
- ▶ Unsolicited technology deal values were not included in the data set, unless the proposed bid was accepted and the deal closed based on data available at the time of analysis.
- ▶ The value and status of all deals highlighted in this report are as of 31 December 2016, unless otherwise noted.
- ▶ All dollar references are in US dollars, unless otherwise indicated.
- ▶ In this report, disclosed deal values may vary from other published values because The 451 Group database methodology automatically subtracts cash acquired, net of debt, from enterprise value. Additionally, announced deal values are often subject to change at the time of close, due to subsequent revisions to the terms of the deal and/or changing stock valuations to the extent stock was used as a deal consideration.
- ▶ As used in this report, "total value" refers to the aggregate value of deals with disclosed values for the period under discussion.
- ▶ Other definitions:
 - ▶ "TTM" stands for trailing 12 months.
 - ▶ "Multiple of EV/TTM revenue" is the transaction value multiple representing total enterprise value over trailing 12 months of target revenue.
 - ▶ "Multiple of EV/TTM EBITDA" is the transaction value multiple representing total enterprise value over trailing 12 months of target EBITDA (earnings before interest, taxes, depreciation and amortization).
 - ▶ "Premium offered" represents the percentage difference between the purchase price and the share price value 30 days prior to the announcement of the deal. Where data is unavailable from The 451 Group, premium data was accessed via Capital IQ. ■

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Source notes

Digital disruption propels industry shifts – and record annual value

- ¹ "Qualcomm-NXP Deal Targets Connected World," *EE Times*, 27 October 2016, © 2017 AspenCore.
- ² "SoftBank to Buy ARM Holdings for \$32 Billion," *The Wall Street Journal*, 18 July 2016, © 2016 Dow Jones & Company, Inc.
- ³ "Satya Nadella email to employees on acquisition of LinkedIn," Microsoft News Center, 13 June 2016, © 2016 Microsoft Corporation.
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