

2017 TMT Purchase Price Allocation Study

DECEMBER 2018

Table of Contents

	Page
1. Executive Summary	3
2. 2017 Observations and Results	10
3. Disclaimers	32
4. About Houlihan Lokey	34

Executive Summary

Introduction

Final results indicate that the U.S. economy expanded during the fourth quarter of 2017, as GDP, the value of all goods and services in the U.S., increased at an annualized rate of 2.9%. This follows an annualized increase in GDP of 3.2% recorded in the third quarter of 2017. The increase in real GDP growth in the fourth quarter reflected increases in personal consumption expenditures and gross private domestic investment.¹

Houlihan Lokey completed its 17th annual Purchase Price Allocation Study (“2017 Study”) and second annual Technology•Media•Telecom Purchase Price Allocation Study (“2017 TMT Study”) by reviewing public filings for 1,266 completed transactions in 2017 and summarizing the results for certain transactions. The 2017 TMT Study provides statistics related to patents and a comparison to certain 2016 results (“2016 TMT Study”).

For more information regarding this study, please contact your Houlihan Lokey representative or one of the following individuals:



Dimitri Drone
Managing Director
646.259.7480
DDrone@HL.com



John McIntosh
Director
415.273.3644
JMcIntosh@HL.com



Kelly Fang
Senior Vice President
415.273.3631
KFang@HL.com



Sasha Sokhis
Senior Vice President
415.273.3640
SSokhis@HL.com

Office Locations

Atlanta
3455 Peachtree Rd. NE
Suite 2000, 20th Fl.
Atlanta, GA 30326
404.495.7033

Chicago
111 South Wacker Dr.
37th Fl.
Chicago, IL 60606
312.456.4787

Dallas
100 Crescent Ct.
Suite 900
Dallas, TX 75201
214.220.8485

Los Angeles
10250 Constellation Blvd.
5th Fl.
Los Angeles, CA 90067
310.788.5243

New York
245 Park Avenue
20th Fl.
New York, NY 10167
212.497.4272

San Francisco
Citigroup Center
One Sansome St.
Suite 1700
San Francisco, CA 94104
415.273.3644

¹ Bureau of Economic Analysis, March 28, 2018, pp. 6, 8.

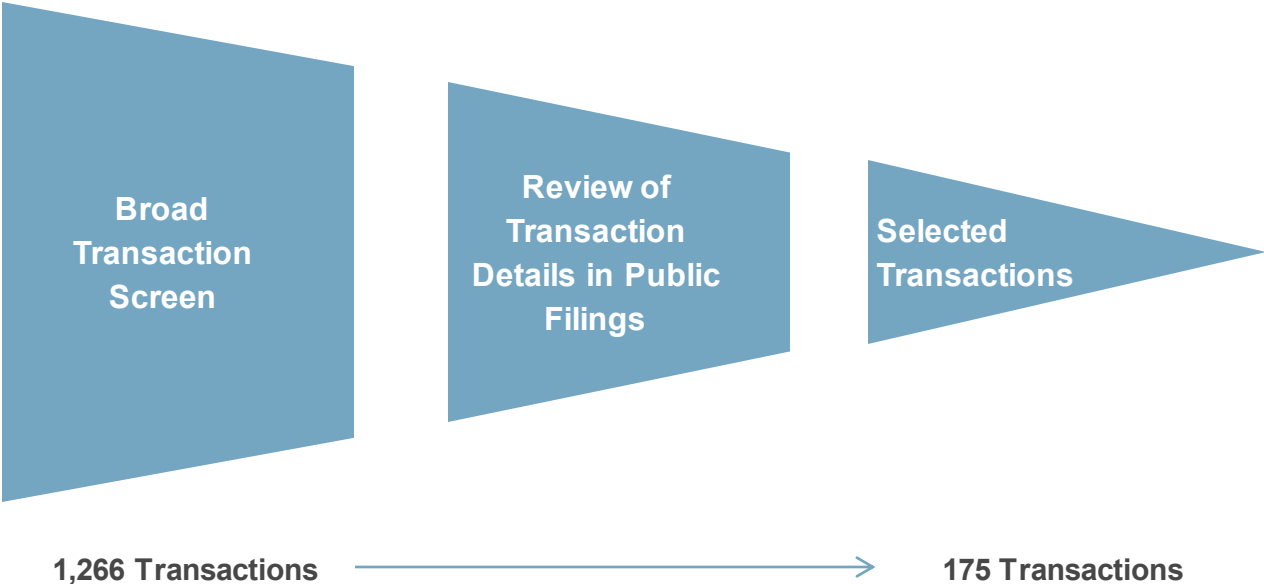
Screening Criteria and Methodology

The universe of transactions initially considered in the 2017 Study was obtained from S&P Capital IQ using the following search criteria:

- Transaction closed in 2017
- Acquirer was a U.S. publicly traded company
- Ownership percentage sought by acquirer was 50% or greater
- Base equity purchase price was disclosed

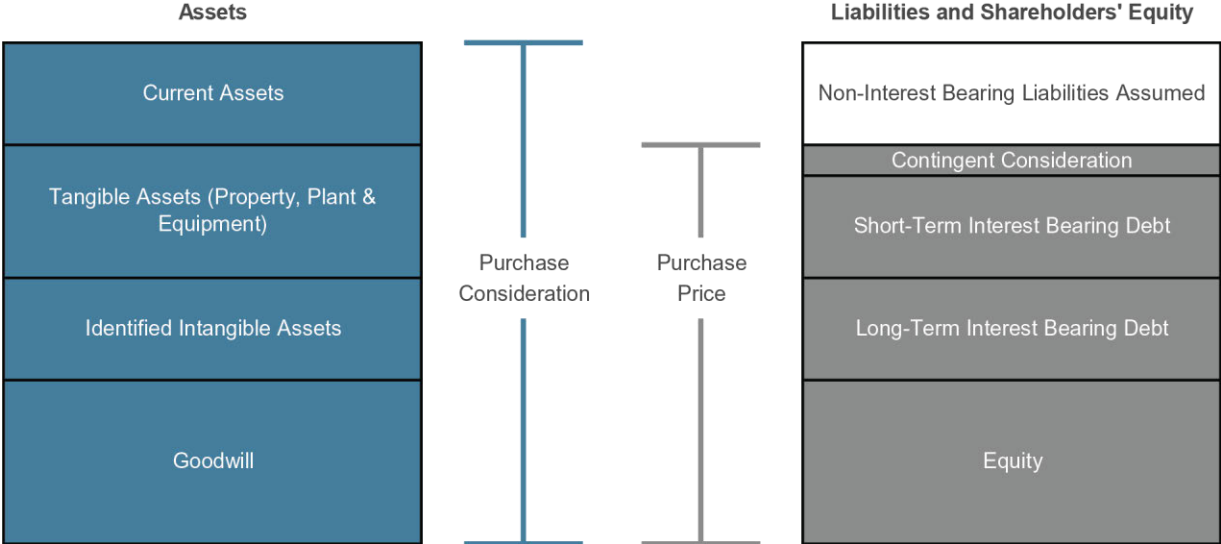
The initial sample consisted of 1,266 transactions. We reviewed public filings for each company in the initial sample with the objective of finding detailed disclosures regarding purchase consideration (PC), identifiable intangible asset fair values, and goodwill. Sufficient disclosures were provided for 404 transactions, which represented approximately 32% of the initial sample.

Of these 404 transactions, 175 transactions within the technology, media, and telecommunications industries (TMT) formed the basis of the 2017 Study.



Screening Criteria and Methodology (cont.)

The primary objective of the 2017 Study was to review the amount of PC allocated to tangible assets, identifiable intangible assets, and goodwill. In addition, the 2017 Study marks the fifth year that contingent consideration (CC) recorded by acquirers, a component of PC per GAAP, has been analyzed. PC is defined as the sum of the purchase price paid and liabilities assumed in connection with a business combination. PC is equivalent to the fair value of the total assets of the target.



For the 2017 Study, identifiable intangible assets were classified into five categories:

- Developed technology (including patents)
- In-process research and development (IPR&D)
- Customer-related assets (including backlog, customer contracts, and customer relationships)
- Trademarks and trade names (including domain names)
- Other (including non-compete agreements, licenses, contracts, and core deposits, among others)

Screening Criteria and Methodology (cont.)

In addition to summarizing the allocation data according to intangible asset classes, we also conducted studies based on industry, deal size (as defined by PC), lifing characteristics, and patent details.

- With respect to the technology subsector, we classified the 2017 TMT transactions into nine sectors:
 - Application Software
 - Broadcasting, Entertainment, and Gaming
 - Communications Equipment
 - Data Processing and Outsourced Services
 - Electronics
 - Home Entertainment Software
 - Internet Software and Others¹
 - Semiconductors
 - Telecommunications and Network Service Carriers
- With respect to deal size, we stratified the allocation results across seven categories (PC, \$ in millions):
 - > \$5,000
 - \$1,000–\$5,000
 - \$500–\$1,000
 - \$250–\$500
 - \$100–\$250
 - \$50–\$100
 - < \$50
- With respect to lifing characteristics, we classified the summarized data for intangibles as either definite- or indefinite-lived assets.
- With respect to patents, we classified the summarized patent data by subsector, deal size, and technology value.
- It should be noted that the indefinite-lived assets exclude IPR&D, which must be recorded as such per ASC 805. IPR&D was considered as definite-lived assets in the 2017 Study.
 - Per ASC 805, IPR&D is not amortized, as it is not yet ready for use. It is tested annually for impairment (or when there are indicators of impairment) until the asset is either abandoned or put to use in the operations as a product, at which time the acquirer estimates the useful life of the asset.

1. Others include IT consulting, systems software, technology distributors, hardware, and storage.

Allocation of Intangible Assets vs. Goodwill and Patent Pricing

Summary Allocation Percentages 2017 Study

\$ in millions

	Total Transactions	Purchase Consideration		Intangible Assets, % of PC				Goodwill, % of PC				Transactions With Patents
	Count	Median	Mean	Low	High	Median	Mean	Low	High	Median	Mean	Count
TMT	175	\$75	\$949	0%	100%	34%	36%	0%	100%	45%	43%	62
Application Software	35	43	612	15%	100%	39%	40%	0%	78%	52%	51%	15
Broadcasting, Entertainment, and Gaming	17	33	1,194	1%	100%	42%	43%	0%	88%	18%	23%	0
Communications Equipment	8	130	487	21%	57%	41%	39%	13%	49%	35%	33%	5
Data Processing and Outsourced Services	6	16	261	20%	52%	41%	37%	0%	68%	42%	41%	0
Electronics	19	36	273	16%	68%	35%	36%	0%	80%	42%	44%	8
Home Entertainment Software	1	14	14	25%	25%	25%	25%	48%	48%	48%	48%	0
Internet Software and Others	68	71	740	0%	95%	32%	35%	0%	100%	50%	47%	23
Semiconductors	13	368	1,968	0%	58%	34%	33%	15%	57%	40%	38%	10
Telecommunications and Network Service Carriers	8	385	4,731	13%	57%	25%	27%	7%	56%	40%	35%	1

- The median allocation of PC to goodwill in 2017 and 2016 was 45% and 47%, respectively.

* PC represents the equivalent to total assets, including equity, debt, and non-interest-bearing liabilities assumed, as applicable.

** Includes transactions done by U.S.-listed public company acquirers completed in 2017.

Contingent Consideration

- Per ASC 805, CC is classified as an asset, liability, or equity and measured at fair value on the acquisition date.¹ CC is included in PC.
- Approximately 9% of the transactions in the 2017 Study had CC in the purchase price, down from 14% of transactions in the 2016 Study.
- CC represented 0% of PC when measured on both the median and mean. CC represented 0% and 3% of PC when measured on the median and mean, respectively, in the 2016 Study.

Summary of Contingent Consideration 2017 Study

\$ in millions

	Count			CC		PC		CC, % of PC			
	CC	All	%	Median	Mean	Median	Mean	Low	High	Median	Mean
TMT	15	175	9%	\$0	\$0	\$75	\$949	0%	2%	0%	0%
Application Software	3	35	9%	0	0	43	612	0%	0%	0%	0%
Broadcasting, Entertainment, and Gaming	1	17	6%	0	0	33	1,194	0%	2%	0%	0%
Communications Equipment	2	8	25%	0	0	130	487	0%	0%	0%	0%
Data Processing and Outsourced Services	1	6	17%	0	0	16	261	0%	0%	0%	0%
Electronics	2	19	11%	0	0	36	273	0%	0%	0%	0%
Home Entertainment Software	0	1	0%	0	0	14	14	0%	0%	0%	0%
Internet Software and Others	1	68	1%	0	0	71	740	0%	0%	0%	0%
Semiconductors	5	13	38%	0	0	368	1,968	0%	0%	0%	0%
Telecommunications and Network Service Carriers	0	8	0%	0	0	385	4,731	0%	0%	0%	0%

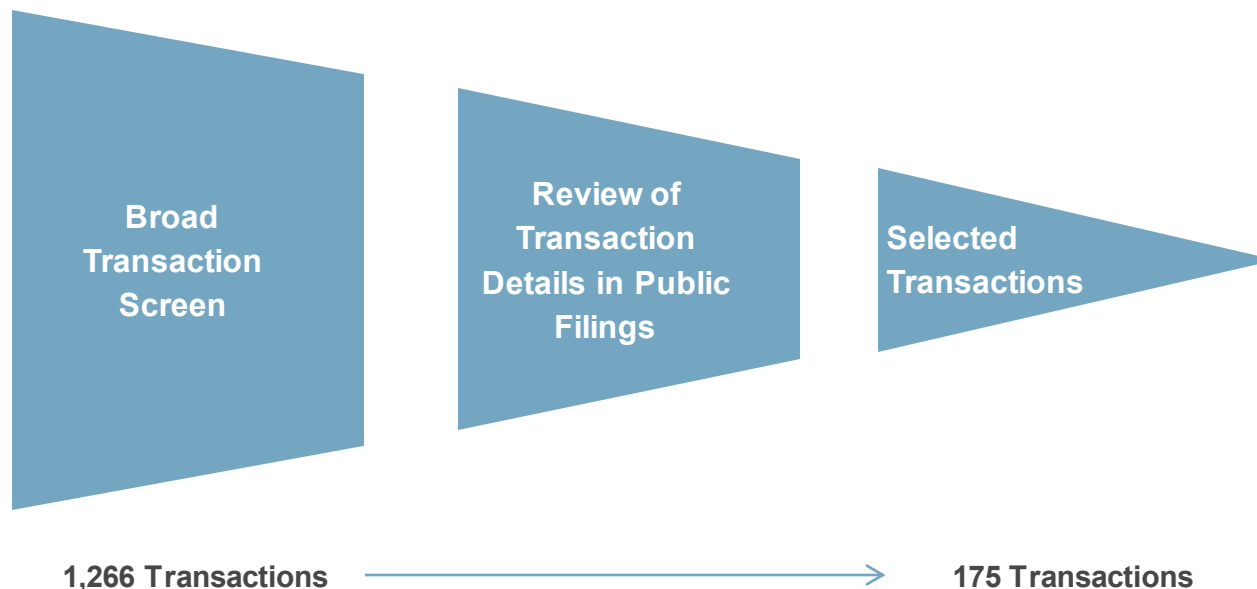
- Transaction-related contingent compensation and retention bonuses are not included in PC. These employee compensation expense items are generally accounted for under ASC 718.
- Over the past few years, we have observed increased scrutiny from auditors when reviewing the valuation of CC. Specifically, as CC terms have become more complex, auditors have shifted from accepting scenario-based valuation methodologies to preferring simulation-based valuation methodologies (i.e., Monte Carlo simulations).

1. Thereafter, CC classified as an asset or liability is remeasured to fair value each reporting period, with changes recorded in earnings. CC classified as equity is not remeasured.

2017 Observations and Results

Transaction Volume

- The number of transactions with sufficient disclosures for analysis increased 28% year over year, from 137 in 2016 to 175 in 2017.
- Our initial screening generated a population of 1,266 transactions. Of these deals, 1,091 transactions were not considered for the following three reasons:
 - Financial statements did not present intangible asset values and/or PC information in a clear, reconcilable format for our purposes.
 - The general asset and liability segmentation was insufficient for us to determine the nature of the intangible assets acquired.
 - The transaction did not fall within the three industries of technology, media, and telecommunications.
- The number of initial transactions decreased 4% year over year, from 1,313 in 2016 to 1,266 in 2017.
- The number of transactions with sufficient disclosures decreased to 32% in 2017 from 35% in 2016.



Industry Results

- Seven of the nine sectors experienced year-over-year increases in the number of transactions available for the 2017 Study relative to the 2016 Study.
 - Telecommunications and network service carriers had the largest percentage increase, up 167% or five transactions, while home entertainment software had the largest percentage decrease, down 50% or one transaction, from the previous year.
- When measured across all sectors, the median percentage of PC allocated to identifiable intangible assets decreased slightly, from 37% in 2016 to 34% in 2017. Four out of the nine sectors showed only a small change (i.e., 5% or less) in the median amount of PC allocated to identifiable intangible assets compared with 2016.
 - Communications equipment recorded the largest percentage increase of 12% for PC allocated to identifiable intangible assets.
 - Telecommunications and network service carriers recorded the largest percentage decrease out of all industries at 37% for PC allocated to identifiable intangible assets.
- The median percentage of PC allocated to goodwill decreased slightly to 45% in 2017 from 47% in 2016.
 - Telecommunications and network service carriers represented the highest percentage increase in goodwill allocation at 12% year over year.

Industry Results (cont.)

Summary Allocation Percentages by Industry 2017 Study

\$ in millions

	Total Transactions	Purchase Consideration		Intangible Assets, % of PC				Goodwill, % of PC			
	Count	Median	Mean	Low	High	Median	Mean	Low	High	Median	Mean
TMT	175	\$75	\$949	0%	100%	34%	36%	0%	100%	45%	43%
Application Software	35	43	612	15%	100%	39%	40%	0%	78%	52%	51%
Broadcasting, Entertainment, and Gaming	17	33	1,194	1%	100%	42%	43%	0%	88%	18%	23%
Communications Equipment	8	130	487	21%	57%	41%	39%	13%	49%	35%	33%
Data Processing and Outsourced Services	6	16	261	20%	52%	41%	37%	0%	68%	42%	41%
Electronics	19	36	273	16%	68%	35%	36%	0%	80%	42%	44%
Home Entertainment Software	1	14	14	25%	25%	25%	25%	48%	48%	48%	48%
Internet Software and Others	68	71	740	0%	95%	32%	35%	0%	100%	50%	47%
Semiconductors	13	368	1,968	0%	58%	34%	33%	15%	57%	40%	38%
Telecommunications and Network Service Carriers	8	385	4,731	13%	57%	25%	27%	7%	56%	40%	35%

* PC represents the equivalent to total assets, including equity, debt, and non-interest-bearing liabilities assumed, as applicable.

** Includes transactions done by U.S.-listed public company acquirers completed in 2017.

Industry Results (cont.)

Summary Allocation Percentages by Industry 2017 vs. 2016

\$ in millions

	Count			Median Results								
				Purchase Consideration			Intangible Assets, % of PC			Goodwill, % of PC		
	2017	2016	% Chg.	2017	2016	% Chg.	2017	2016	BPS Chg.	2017	2016	BPS Chg.
TMT	175	137	28%	\$75	\$61	22%	34%	37%	-3%	45%	47%	-2%
Application Software	35	20	75%	43	40	7%	39%	41%	-2%	52%	47%	5%
Broadcasting, Entertainment, and Gaming	17	8	113%	33	35	-5%	42%	47%	-5%	18%	26%	-8%
Communications Equipment	8	7	14%	130	53	146%	41%	29%	12%	35%	32%	4%
Data Processing and Outsourced Services	6	8	-25%	16	43	-64%	41%	34%	7%	42%	45%	-3%
Electronics	19	15	27%	36	74	-51%	35%	41%	-6%	42%	36%	6%
Home Entertainment Software	1	2	-50%	14	43	-66%	25%	51%	-26%	48%	47%	1%
Internet Software and Others [1]	68	67	1%	71	76	-7%	32%	32%	0%	50%	53%	-3%
Semiconductors	13	7	86%	368	2,758	-87%	34%	34%	1%	40%	36%	4%
Telecommunications and Network Service Carriers	8	3	167%	385	18	2017%	25%	61%	-37%	40%	28%	12%

Transaction Size

- Approximately 70% of the transactions in the 2017 Study had PC below \$250 million, which is an increase when compared with the 68% in 2016.
- Larger transactions generally recorded lower allocations to intangible assets and approximately equal allocations to goodwill in 2017.
 - For transactions with PC below \$250 million, intangible assets and goodwill averaged 39% and 43% of PC, respectively. In 2016, the corresponding percentages of allocation to intangible assets and goodwill were 41% and 44%.
 - For transactions with PC above \$250 million, intangible assets and goodwill averaged 30% and 43% of PC, respectively. In 2016, the corresponding percentages of allocation to intangible assets and goodwill were 31% and 47%, respectively.
- From 2016 to 2017, the average transaction size decreased from \$1,236 million to \$949 million and the median transaction size increased from \$61 million to \$75 million.

Transaction Size (cont.)

Summary Allocation Percentages by Size 2017 Study

\$ in millions

	Count	Median Results										Mean Tangible
		PC		Intangible Assets, % of PC				Goodwill, % of PC				
		Median	Mean	Low	High	Median	Mean	Low	High	Median	Mean	
All Transactions	175	\$75	\$949	0%	100%	34%	36%	0%	100%	45%	43%	20%
PC > \$5,000	6	15,488	17,863	10%	49%	28%	28%	18%	57%	32%	35%	37%
\$1,000 < PC < \$5,000	16	1,804	2,153	2%	54%	27%	28%	7%	71%	45%	40%	33%
\$500 < PC < \$1,000	17	724	774	7%	58%	37%	35%	5%	76%	45%	42%	23%
\$250 < PC < \$500	13	348	350	7%	43%	29%	29%	15%	71%	50%	51%	20%
\$100 < PC < \$250	26	134	153	1%	57%	29%	30%	13%	82%	49%	47%	22%
\$50 < PC < \$100	17	76	76	8%	62%	34%	36%	7%	78%	51%	46%	18%
PC < \$50	80	17	19	0%	100%	41%	42%	0%	100%	42%	41%	16%
Less than \$250	70%					36%	39%			44%	43%	
More than \$250	30%					30%	30%			45%	43%	

Transaction Size (cont.)

Summary Allocation Percentages by Size 2017 vs. 2016

\$ in millions

	Count			Median Goodwill, % of PC		
	2017	2016	% Chg.	2017	2016	BPS Chg.
All Transactions	175	137	28%	45%	47%	-2%
PC > \$5,000	6	6	0%	32%	55%	-23%
\$1,000 < PC < \$5,000	16	18	-11%	45%	43%	2%
\$500 < PC < \$1,000	17	8	113%	45%	48%	-3%
\$250 < PC < \$500	13	12	8%	50%	51%	-2%
\$100 < PC < \$250	26	15	73%	49%	50%	-1%
\$50 < PC < \$100	17	15	13%	51%	45%	7%
PC < \$50	80	63	27%	42%	42%	1%

Indefinite-Lived Intangible Assets

- Indefinite-lived intangible assets accounted for approximately 8% of the total intangible asset value in 2017, as compared with 2% in 2016.
- Trademarks and trade names were the most common intangible assets to be considered indefinite-lived.
 - In 2017, the number of transactions in the sample that ascribed PC to trademarks and trade names increased from 34% to 45%.
 - Acquirers considered 12% of the purchased trademarks and trade names to be indefinite-lived assets in 2017, as compared with 7% in the previous year.
- Other intangible assets classified as indefinite-lived included (but were not limited to) in-process research and development, license agreements, broadcasting licenses, and gaming rights.
- Overall, we have observed increased auditor scrutiny on the treatment of an asset as a definite asset vs. an indefinite asset.

Trademark and Trade Name Lifting Classification 2016–2017

<u>Trademarks and Trade Names</u>	<u>2017</u>		<u>2016</u>	
	<u>Count</u>	<u>% of Total</u>	<u>Count</u>	<u>% of Total</u>
Indefinite-Lived	8	12%	5	7%
Definite-Lived	58	88%	65	93%
Total	<u>66</u>	<u>100%</u>	<u>70</u>	<u>100%</u>

Indefinite-Lived Intangible Assets (cont.)

- The following are noteworthy transactions with the largest portions of indefinite-lived intangible assets:

Top 10 Transactions by Dollar Allocation to Indefinite-Lived Assets 2017

\$ in millions

Date	Acquirer	Target	Purchase Consideration	Total \$ Amount of Indefinite Lived Assets	Total % Allocated to Indefinite Lived Assets	Total % Allocated to Intangible Assets	Primary Indefinite Lived Asset
02/02/2017	Entercom Communications Corp. (NYSE:ETM)	CBS Radio Inc.	\$3,540	\$1,880	53%	54%	Radio Broadcasting Licenses
12/22/2014	Caesars Entertainment Corporation (NasdaqGS:CZR)	Caesars Acquisition Company	12,164	1,124	9%	10%	Trademark & Trade Name
09/19/2016	Eldorado Resorts, Inc. (NasdaqGS:ERI)	Isle of Capri Casinos, Inc.	2,292	503	22%	23%	Gaming Licenses
05/01/2017	ANGI Homeservices Inc. (NasdaqGS:ANGI)	Angie's List, Inc.	934	137	15%	34%	Trademark & Trade Name
10/24/2017	Aptiv PLC (NYSE:APTIV)	nuTonomy Inc.	348	102	29%	29%	IPR&D
01/30/2017	Keysight Technologies, Inc. (NYSE:KEYS)	Ixia	2,263	67	3%	33%	IPR&D
02/21/2017	Meredith Corporation (NYSE:MDP)	Superstation, Inc., WPCH-TV Atlanta	93	50	54%	62%	FCC Licenses
02/22/2017	ARRIS International plc (NasdaqGS:ARRS)	Ruckus Wireless, Inc. and ICX Switch Business	969	50	5%	49%	IPR&D
02/02/2017	Veeco Instruments Inc. (NasdaqGS:VECO)	Ultratech, Inc.	723	43	6%	48%	IPR&D
06/12/2017	Golden Entertainment, Inc. (NasdaqGM:GDEN)	American Casino & Entertainment Properties LLC	957	35	4%	7%	Trademark & Trade Name

Frequently Identified Intangible Assets

- Developed technology, trademarks and trade names, IPR&D, and customer-related assets were the most commonly identified intangible assets. Other intangible assets typically included, among others, non-compete agreements, licenses, permits, and other contracts or agreements.
- Developed technology, customer-related assets, and trademarks and trade names recorded increases in the frequency of identification from 2016 to 2017.
- The median amount of PC allocated to each of these categories from 2016 to 2017 decreased across the board, with customer-related assets recording the largest drop, from 18% to 9%.

Frequently Identified Intangible Assets 2015–2017

	Count, % of Sample			Median % of PC		
	2017	2016	2015	2017	2016	2015
Developed Technology	62%	51%	86%	7%	13%	17%
<i>Change</i>	11%	-35%	7%	-6%	-4%	5%
IPR&D	9%	12%	11%	0%	4%	4%
<i>Change</i>	-4%	1%	-1%	-4%	0%	0%
Customer-Related Assets	63%	57%	84%	9%	18%	15%
<i>Change</i>	6%	-27%	12%	-9%	3%	2%
Trademarks and Trade Names	45%	34%	59%	0%	2%	2%
<i>Change</i>	10%	-25%	1%	-2%	0%	0%

Technology

- In the 2017 Study, 150 transactions were observed that allocated PC to intangible assets or goodwill within the technology industry, up from 122 transactions in the 2016 Study.
- Within the technology industry, developed technology assets were allocated the highest percentage of PC to any identifiable intangible asset (based on the mean), with 16% and 21% of PC being allocated to this asset on a median and mean basis, respectively.
- The second highest percentage of PC allocated to any identifiable intangible asset in the technology industry was customer-related assets, with 18% and 20% of PC allocated to these assets on a median and mean basis, respectively.

Summary of PC Allocated to Intangible Assets (Technology) 2017 Study

\$ in millions

	Count		PC		% of PC			
	Number	%	Median	Mean	Low	High	Median	Mean
Developed Technology	106	71%	\$90	\$852	1%	100%	16%	21%
IPR&D	14	9%	507	796	0%	29%	3%	4%
Trademarks and Trade Names	71	47%	109	870	0%	20%	1%	2%
Customer-Related Assets	102	68%	94	918	0%	95%	18%	20%
Other Identifiable Intangible Assets	63	42%	73	984	0%	62%	8%	15%
Goodwill	144	96%	78	749	7%	100%	49%	48%

- Notable transaction activity in this industry included the following:

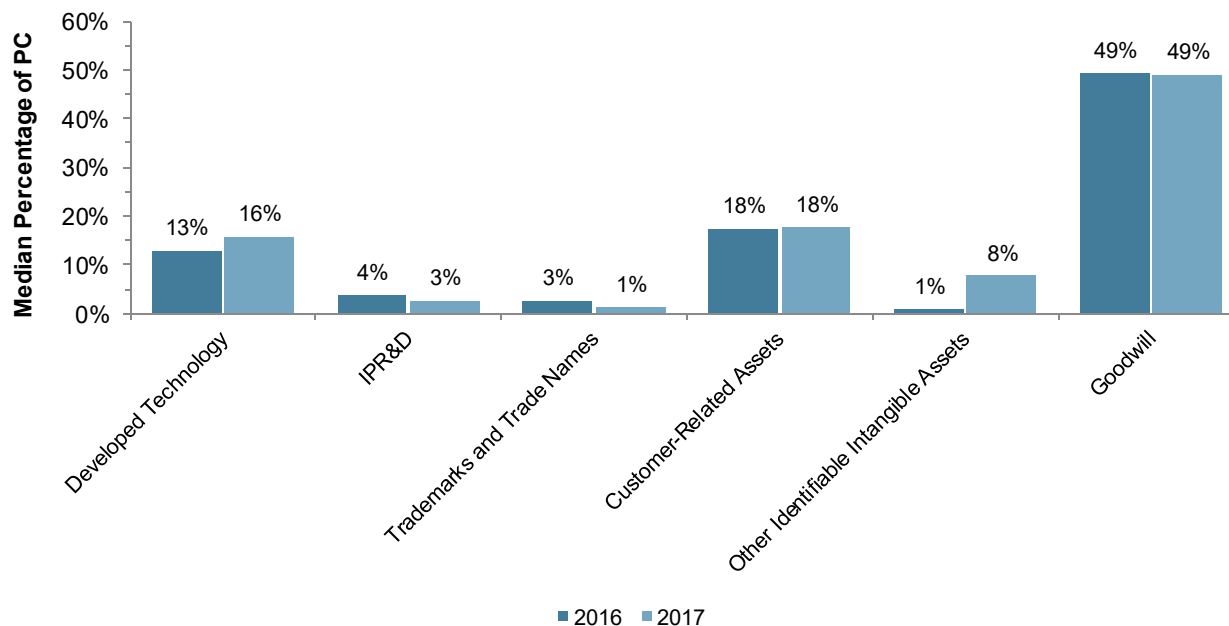
\$ in millions

Date	Acquirer	Target	Purchase Consideration	Total % Allocated to Intangible Assets
05/24/2016	DXC Technology Company (NYSE:DXC)	Everett Spingo, Inc.	\$23,498	27%
07/26/2016	Analog Devices, Inc. (NasdaqGS:ADI)	Linear Technology Corporation	18,337	28%
09/07/2016	Micro Focus International plc (LSE:MCRO)	Hewlett Packard Enterprise Company, Software Business	12,639	49%
07/25/2016	Verizon Communications Inc. (NYSE:VZ)	Yahoo! Inc., Operating Business	6,939	27%
09/19/2016	Tech Data Corporation (NasdaqGS:TECD)	AVT Technology Solutions LLC and TS DivestCo B.V.	4,204	22%

Technology (cont.)

- As illustrated below, there has been a material change (+/- 5% or more) in the allocation percentage of other identifiable intangible assets, which grew from 1% to 8% from the 2016 Study to the 2017 Study.
- In the 2017 Study, goodwill received the highest allocation of PC among any intangible asset within the technology industry, with 49% of PC being allocated to this asset, consistent with the 2016 Study.
- Customer-related assets received the second highest allocation of PC among intangible assets, with 18% of PC being allocated to this asset on a median basis, consistent with the 2016 Study.

Distribution of PC Allocated to Intangible Assets and Goodwill
2017 Study vs. 2016 Study



Media

- In the 2017 Study, 17 transactions were observed that allocated PC to intangible assets or goodwill within the technology industry, up from eight transactions in the 2016 Study.
- Within the technology industry, developed technology assets were allocated the highest percentage of PC to any identifiable intangible asset (based on the mean), with 53% of PC being allocated to this asset on both a median and mean basis.
- The second highest percentage of PC allocated to any identifiable intangible asset in the technology industry was IPR&D, with 42% of PC allocated to these assets on both a median and mean basis.

Summary of PC Allocated to Intangible Assets (Media) 2017 Study

\$ in millions

	Count		PC		% of PC			
	Number	%	Median	Mean	Low	High	Median	Mean
Developed Technology	1	6%	\$0	\$0	53%	53%	53%	53%
IPR&D	1	6%	18	18	42%	42%	42%	42%
Trademarks and Trade Names	5	29%	957	3,169	2%	16%	5%	6%
Customer-Related Assets	3	18%	2,292	4,963	1%	6%	1%	2%
Other Identifiable Intangible Assets	15	88%	33	1,323	1%	99%	31%	39%
Goodwill	14	82%	115	1,447	1%	88%	23%	28%

- Notable transaction activity in this industry included the following:

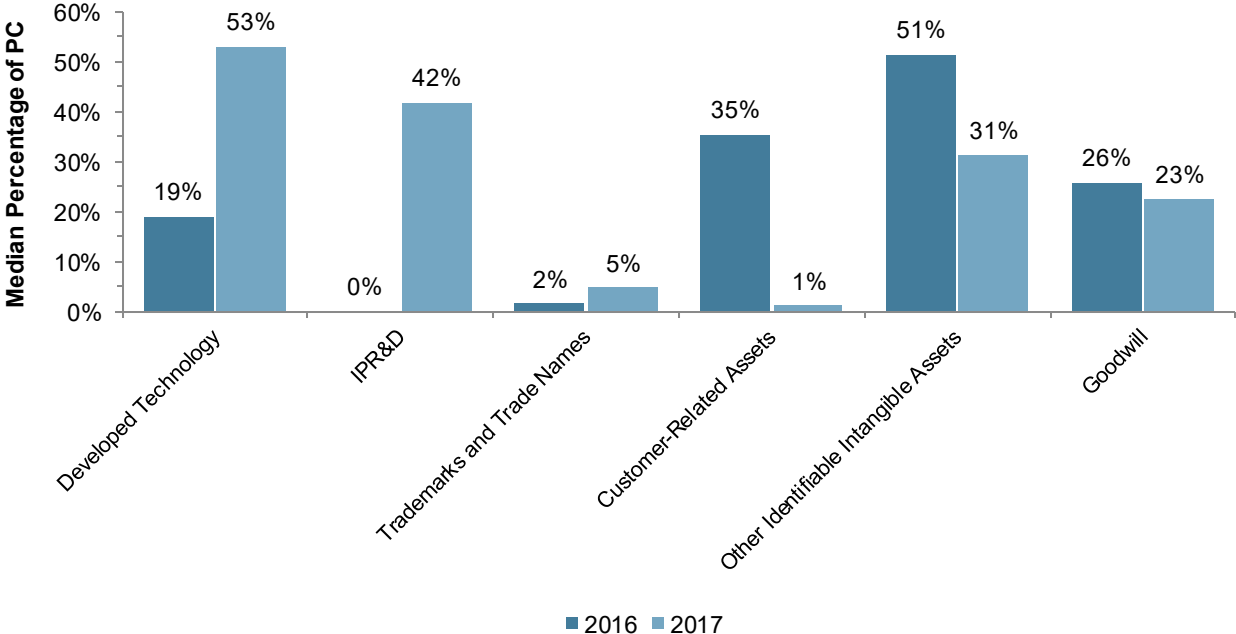
\$ in millions

Date	Acquirer	Target	Purchase Consideration	Total % Allocated to Intangible Assets
12/22/2014	Caesars Entertainment Corporation (NasdaqGS:CZR)	Caesars Acquisition Company	\$12,164	10%
02/02/2017	Entercom Communications Corp. (NYSE:ETM)	CBS Radio Inc.	3,540	54%
09/19/2016	Eldorado Resorts, Inc. (NasdaqGS:ERI)	Isle of Capri Casinos, Inc.	2,292	23%
06/12/2017	Golden Entertainment, Inc. (NasdaqGM:GDEN)	American Casino & Entertainment Properties LLC	957	7%
02/16/2017	Gray Television, Inc. (NYSE:GTN)	Diversified Communications Inc., WABI in Bangor and WC.	558	7%

Media (cont.)

- As illustrated below, there have been material changes (+/- 5% or more) in the allocation percentages of developed technology, IPR&D, and customer-related assets from the 2016 Study to the 2017 Study. The largest change in PC allocation to intangible assets was observed with IPR&D, which increased from 0% in the 2016 Study to 42% in the 2017 Study, on a median basis.
- In the 2017 Study, developed technology received the highest allocation of PC among any intangible asset within the media industry, with 53% of PC being allocated to this asset, up from 19% in the 2016 Study.
- IPR&D received the second highest allocation of PC among intangible assets.

Distribution of PC Allocated to Intangible Assets and Goodwill
2017 Study vs. 2016 Study



Telecom

- In the 2017 Study, eight transactions were observed that allocated PC to intangible assets or goodwill within the telecom industry, up from seven transactions in the 2016 Study.
- Within the telecom industry, customer-related assets were allocated the highest percentage of PC to any identifiable intangible asset, with 21% and 25% of PC being allocated to this asset on a median and mean basis, respectively.
- The second highest percentage of PC allocated to any identifiable intangible asset in the telecom industry was other identifiable intangible assets, with 13% and 11% of PC allocated to these assets on a median and mean basis, respectively.

Summary of PC Allocated to Intangible Assets (Telecom) 2017 Study

\$ in millions

	Count		PC		% of PC			
	Number	%	Median	Mean	Low	High	Median	Mean
Developed Technology	1	13%	0	0	4%	4%	4%	4%
IPR&D	0	0%	0	0	0%	0%	0%	0%
Trademarks and Trade Names	2	25%	1,037	1,037	0%	8%	4%	4%
Customer-Related Assets	5	63%	271	7,144	17%	43%	21%	25%
Other Identifiable Intangible Assets	7	88%	499	5,368	0%	32%	13%	11%
Goodwill	8	100%	385	4,731	7%	56%	40%	35%

- Notable transaction activity in this industry included the following:

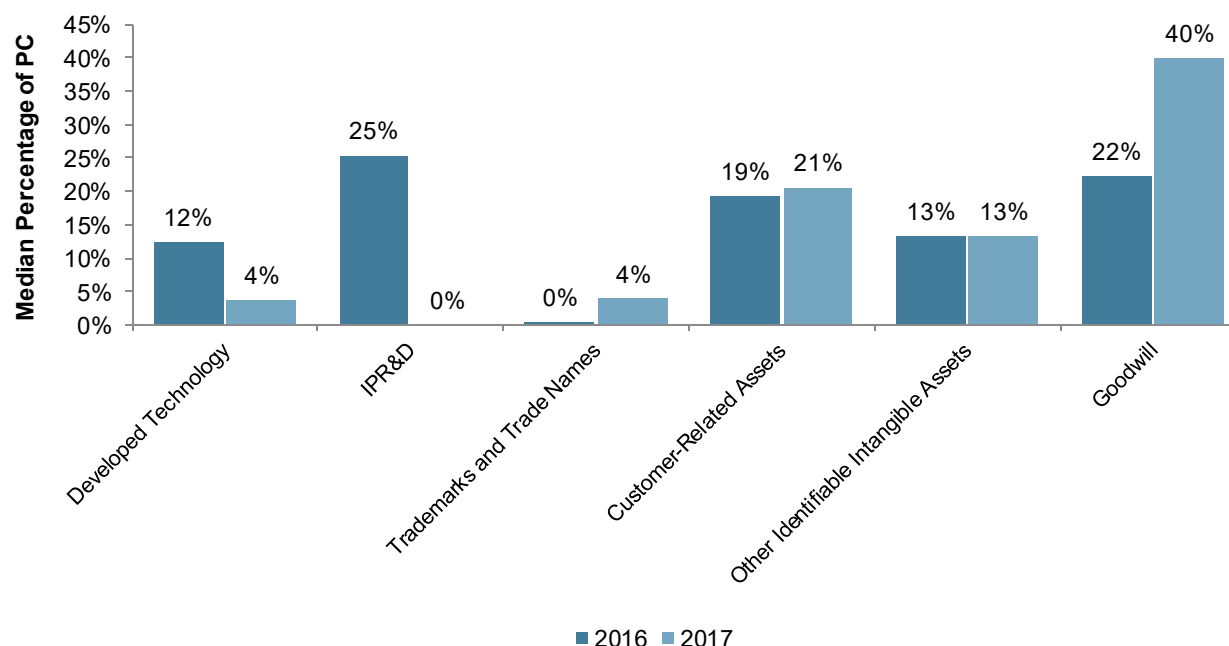
\$ in millions

Date	Acquirer	Target	Purchase Consideration	Total % Allocated to Intangible Assets
10/31/2016	CenturyLink, Inc. (NYSE:CTL)	Level 3 Parent, LLC	\$33,602	28%
12/05/2016	Consolidated Communications Holdings, Inc. (NasdaqGS:CNSL)	Fairpoint Communications, Inc.	1,804	17%
02/22/2016	Verizon Communications Inc. (NYSE:VZ)	XO Communications, LLC	1,500	13%
11/01/2016	SpeedCast International Limited (ASX:SDA)	Harris CapRock Communications, Inc.	499	16%
04/13/2017	Windstream Holdings, Inc. (NasdaqGS:WIN)	Broadview Networks Holdings, Inc.	271	28%

Telecom (cont.)

- As illustrated below, there have been material changes (+/- 5% or more) in the allocation percentage of developed technology, IPR&D, and goodwill from the 2016 Study to the 2017 Study. The largest change in PC allocation to intangible assets was observed with IPR&D, which decreased from 25% in the 2016 Study to 0% in the 2017 Study, on a median basis.
- In the 2017 Study, goodwill received the highest allocation of PC among any intangible asset within the telecom industry, with 40% of PC being allocated to this asset, up from 22% in the 2016 Study.

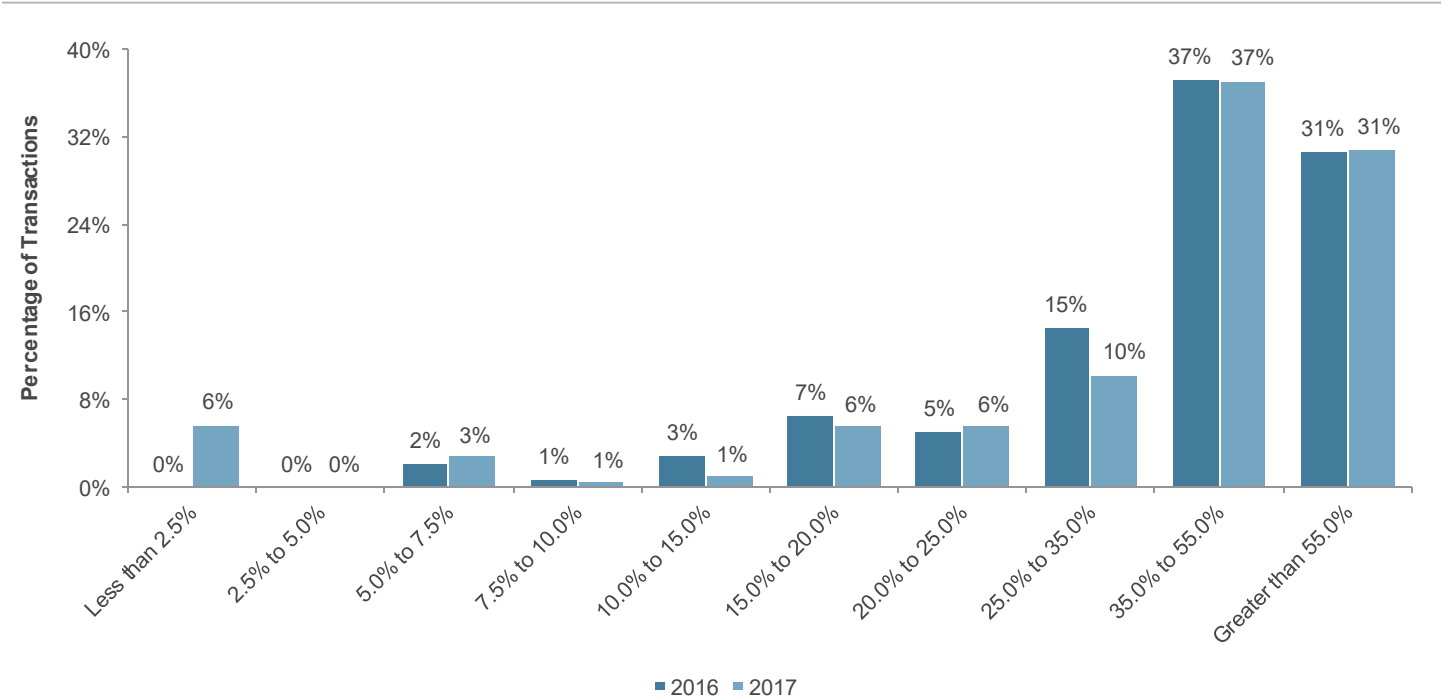
Distribution of PC Allocated to Intangible Assets and Goodwill
2017 Study vs. 2016 Study



Goodwill

- In the 2017 Study, 166 transactions (95%) allocated PC to goodwill. Based on our search criteria, there were no transactions with negative goodwill (i.e., bargain purchases) in either 2017 or 2016.
- The median and mean allocations of PC to goodwill were 45% and 43%, respectively, in 2017.
- As illustrated below, 137 deals (78%) allocated 25% or more of PC to goodwill in the 2017 Study.

Distribution of PC Allocated to Goodwill
2017 Study



Patents

- In the 2017 TMT Study, 62 transactions, or 35% of transactions, contained patent assets, which include both granted patents and patent applications. Of these 62 transactions, 57 transactions contained granted patents.
- 54 transactions, or 31% of transactions in the 2017 TMT Study, contained U.S. patents, while 31 transactions contained foreign patents.
- The internet software and others sector had more transactions with patent assets than any other sector within TMT.
- The semiconductors sector had the highest percentage of transactions with patent assets.

Summary of Transactions Including Patent Assets 2017 Study

	Count	Purchase Consideration		Transactions With U.S. Patents		Transactions With Foreign Patents		Transactions With Granted Patents		Transactions With Patent Assets	
		Median	Mean	Count	%	Count	%	Count	%	Count	%
TMT	175	\$75	\$949	54	31%	31	18%	57	33%	62	35%
Application Software	35	43	612	12	34%	4	11%	12	34%	15	43%
Broadcasting, Entertainment, and Gaming	17	33	1,194	0	0%	0	0%	0	0%	0	0%
Communications Equipment	8	130	487	4	50%	4	50%	5	63%	5	63%
Data Processing and Outsourced Services	6	16	261	0	0%	0	0%	0	0%	0	0%
Electronics	19	36	273	7	37%	5	26%	8	42%	8	42%
Home Entertainment Software	1	14	14	0	0%	0	0%	0	0%	0	0%
Internet Software and Others	68	71	740	20	29%	8	12%	21	31%	23	34%
Semiconductors	13	368	1,968	10	77%	9	69%	10	77%	10	77%
Telecommunications and Network Service Carriers	8	385	4,731	1	13%	1	13%	1	13%	1	13%

Note: Transaction percentages represent the number of transactions with patents as a percentage of total transactions within each TMT subsector.

Patents (cont.)

- In the 2017 TMT Study, the median and mean PCs of transactions with patent assets were \$121 million and \$690 million, respectively, while the median and mean PCs of all TMT transactions were \$75 million and \$949 million, respectively.
- On a per-transaction basis, the semiconductors sector had the highest number of granted patents, patent applications, and patent families, followed by the communications equipment sector.

Summary of Patent Asset Quantities by TMT Sector 2017 Study

\$ in millions	Count	Purchase Consideration		Number of Granted Patents				Number of Patent Applications				Number of Patent Families			
		Median	Mean	Low	High	Median	Mean	Low	High	Median	Mean	Low	High	Median	Mean
TMT	62	\$121	\$690	0	1,409	10	94	0	540	3	33	1	711	6	57
Application Software	15	51	201	0	392 ¹	7	34	0	76	1	8	1	298	3	24
Broadcasting, Entertainment, and Gaming	0	NA	NA	0	0	0	0	0	0	0	0	0	0	0	0
Communications Equipment	5	176	726	6	346 ²	28	113	3	141	15	51	3	291	13	79
Data Processing and Outsourced Services	0	NA	NA	0	0	0	0	0	0	0	0	0	0	0	0
Electronics	8	102	552	1	223 ³	9	37	0	192	6	28	1	128	8	22
Home Entertainment Software	0	NA	NA	0	0	0	0	0	0	0	0	0	0	0	0
Internet Software and Others	23	93	256	0	29	3	7	0	28	1	4	1	19	2	6
Semiconductors	10	551	2,553	23	1,409 ⁴	278	426	1	540	65	134	14	711	178	243
Telecommunications and Network Service Carriers	1	271	271	13	13	13	13	2	2	2	2	10	10	10	10

1. Ribbon Communications Inc. acquired Genband US LLC on October 27, 2017, for approximately \$645 million.

2. Keysight Technologies, Inc., acquired Ixia on April 18, 2017, for approximately \$2.3 billion.

3. 3M Company acquired Scott Technologies, Inc., on October 4, 2017, for approximately \$2.4 billion.

4. Renesas Electronics Corp. acquired Intersil Corp. on February 24, 2017, for approximately \$3.7 billion.

Patents (cont.)

- In the 2017 TMT Study, 20 small transactions, or transactions with PCs under \$50 million, contained patent assets, representing approximately one-third of total transactions with patent assets.
- Both the median and mean numbers of granted patents, patent applications, and patent families generally increase with PC, with a few exceptions in transactions with PCs under \$100 million.

Summary of Patent Asset Quantities by Transaction Size 2017 Study

<i>\$ in millions</i>	Count	Purchase Consideration		Number of Granted Patents				Number of Patent Applications				Number of Patent Families			
		Median	Mean	Low	High	Median	Mean	Low	High	Median	Mean	Low	High	Median	Mean
TMT	62	\$121	\$690	0	1,409	10	94	0	540	3	33	1	711	6	57
PC > \$5,000	1 ¹	18,337	18,337	1,014	1,014	1,014	1,014	243	243	243	243	470	470	470	470
\$1,000 < PC < \$5,000	6	1,805	2,001	10	1,409 ²	118	335	0	540	85	150	9	711	70	194
\$500 < PC < \$1,000	10	723	768	0	479	76	145	0	230	22	49	1	298	50	90
\$250 < PC < \$500	5	289	316	13	592	26	137	1	100	5	24	10	510	16	114
\$100 < PC < \$250	14	145	152	1	30	8	12	0	30	3	7	1	19	3	6
\$50 < PC < \$100	6	85	78	1	25	12	12	0	9	2	4	1	18	11	10
PC < \$50	20	29	28	0	331	2	20	0	137	1	9	1	215	2	14

1. Analog Devices, Inc., acquired Linear Technology Corp. on July 26, 2016, for approximately \$18.3 billion.

2. Renesas Electronics Corp. acquired Intersil Corp. on February 24, 2017, for approximately \$3.7 billion.

Patents (cont.)

- In the 2017 TMT Study, the median and mean values for combined developed technology and IPR&D (technology value) were approximately \$18 million and \$84 million, respectively.
- Both the median and mean numbers of granted patents, patent applications, and patent families generally increase with technology value, with a few exceptions in transactions with less than \$10 million in technology value.

Summary of Patent Asset Quantities by Technology Value 2017 Study

\$ in millions	Count	Purchase Consideration		Number of Granted Patents				Number of Patent Applications				Number of Patent Families			
		Median	Mean	Low	High	Median	Mean	Low	High	Median	Mean	Low	High	Median	Mean
TMT	62	\$121	\$690	0	1,409	10	94	0	540	3	33	1	711	6	57
Technology Value > \$500	2	11,037	11,037	1,014	1,409	1,212	1,212	243	540	392	392	470	711	591	591
\$250 < Technology Value < \$500	2	1,616	1,616	178	346	262	262	92	141	117	117	82	291	187	187
\$100 < Technology Value < \$250	8	723	977	9	592	177	232	0	230	52	82	5	510	113	163
\$50 < Technology Value < \$100	6	278	428	8	225	20	52	3	28	16	16	3	141	13	32
\$25 < Technology Value < \$50	6	200	321	0	33	11	14	0	30	1	7	1	19	9	10
\$10 < Technology Value < \$25	17	114	200	0	30	7	9	0	15	1	3	1	15	3	5
Technology Value < \$10	21	30	83	0	331	3	22	0	137	1	8	1	215	2	15

Disclaimers

Disclaimers

© 2018 Houlihan Lokey. All rights reserved. This material may not be reproduced in any format by any means or redistributed without the prior written consent of Houlihan Lokey.

Houlihan Lokey is a trade name for Houlihan Lokey, Inc., and its subsidiaries and affiliates, which include those in (i) the United States: Houlihan Lokey Capital, Inc., an SEC-registered broker-dealer and member of FINRA (www.finra.org) and SIPC (www.sipc.org) (investment banking services); Houlihan Lokey Financial Advisors, Inc. (financial advisory services); Houlihan Lokey Consulting, Inc. (strategic consulting services); HL Finance, LLC (syndicated leveraged finance platform); and Houlihan Lokey Real Estate Group, Inc. (real estate advisory services); (ii) Europe: Houlihan Lokey EMEA, LLP, authorized and regulated by the U.K. Financial Conduct Authority; Houlihan Lokey GmbH; Houlihan Lokey (Netherlands) B.V.; and Houlihan Lokey (España), S.A.; (iii) Singapore: Houlihan Lokey (Singapore) Private Limited, an “exempt corporate finance adviser” able to provide exempt corporate finance advisory services to accredited investors only; (iv) Hong Kong SAR: Houlihan Lokey (China) Limited, licensed in Hong Kong by the Securities and Futures Commission to conduct Type 1, 4, and 6 regulated activities to professional investors only; (v) China: Houlihan Lokey Howard & Zukin Investment Consulting (Beijing) Co., Limited (financial advisory services); (vi) Japan: Houlihan Lokey K.K. (financial advisory services); and (vii) Australia: Houlihan Lokey (Australia) Pty Limited (ABN 74 601 825 227), a company incorporated in Australia and licensed by the Australian Securities and Investments Commission (AFSL number 474953) in respect of financial services provided to wholesale clients. In the European Economic Area, Singapore, and Hong Kong, this communication may be directed to intended recipients, including professional investors, high-net-worth companies, or other institutional investors.

Houlihan Lokey gathers its data from sources it considers reliable; however, it does not guarantee the accuracy or completeness of the information provided within this presentation. The material presented reflects information known to the authors at the time this presentation was written, and this information is subject to change. Houlihan Lokey makes no representations or warranties, expressed or implied, regarding the accuracy of this material. The views expressed in this material accurately reflect the personal views of the authors regarding the subject securities and issuers and do not necessarily coincide with those of Houlihan Lokey. Officers, directors and partners in the Houlihan Lokey group of companies may have positions in the securities of the companies discussed. This presentation does not constitute advice or a recommendation, offer or solicitation with respect to the securities of any company discussed herein, is not intended to provide information upon which to base an investment decision, and should not be construed as such. Houlihan Lokey or its affiliates may from time to time provide investment banking or related services to these companies. Like all Houlihan Lokey employees, the authors of this presentation receive compensation that is affected by overall firm profitability.

About Houlihan Lokey

#1 Position Across Product Categories



HOULIHAN LOKEY

Corporate Finance

Mergers & Acquisitions

- Sellside & Buyside Transactions
- Leveraged Transactions
- Minority Equity Transactions
- Activist Shareholder Advisory
- Takeover Defense

Capital Markets

- Debt & Equity Private Placements
- High Yield
- Public Equity Offerings
- PIPEs Financings
- Liabilities Management
- Special Situations Advisory

Illiquid Financial Assets

Financial Advisory

- Tax & Financial Reporting Valuation
- Technology & Intellectual Property Advisory
- Real Estate Valuation & Advisory Services
- Derivatives Valuation & Advisory Services
- Due Diligence Services
- Valuation Opinions
- Portfolio Valuation & Fund Advisory Services
- Fairness Opinions
- Solvency Opinions
- Dispute Resolution & Financial Expert Opinions

Financial Restructuring

- Out-of-Court Transactions
- Restructuring Debt & Equity
- Chapter 11 Planning
- Bulk Sales of Assets
- Sales of Performing & Nonperforming Loans
- Corporate Viability Assessment
- Debtor-in-Possession (DIP) Financing
- Exchange Offers
- Plans of Reorganization
- Distressed Mergers & Acquisitions

Strategic Consulting

Strategy & Execution

- Corporate & Business Unit Strategy
- M&A Support, Due Diligence & Post-Merger Integration
- New Market Entry

Sales & Marketing Management

- Sales & Marketing Effectiveness
- Product & Solutions Development
- Pricing Strategy

Operations & Performance Improvement

- Organization & Business Model Design
- Supply Chain Optimization
- Strategic Sourcing & Supply Management

No. 1 M&A Advisor for All U.S. Transactions in 2017

No. 1 Global M&A Fairness Opinion Advisor Over the Past 20 Years

No. 1 Global Investment Banking Restructuring Advisor in 2017

Recognized Leader in Management Consulting (*Kennedy Research*)

Financial Advisory Services Overview

Transaction Opinions	Transaction Advisory Services	Portfolio Valuation & Advisory Services	Real Estate Valuation & Advisory Services	Financial Consulting
<p>Fairness Opinions</p> <ul style="list-style-type: none">▪ Public Company▪ Special Committee▪ Roll-Up/Aggregate▪ Indenture▪ Equity Allocation	<p>Due Diligence Services</p> <ul style="list-style-type: none">▪ Buyer Services▪ Seller Services▪ Lender Services	<p>Fair Value Reporting</p> <ul style="list-style-type: none">▪ Illiquid Securities▪ Leveraged Loans▪ PIPE Investments▪ Real Estate Investments	<p>Valuations & Opinions</p> <ul style="list-style-type: none">▪ Fairness Opinions▪ Solvency Opinions▪ Corporate Planning▪ Expert Witness	<p>INSOURCE Corporate Development Services™</p> <ul style="list-style-type: none">▪ Strategic Alternatives Analysis▪ Liquidity Issues▪ Unique Valuation Issues
<p>Solvency Opinions</p> <ul style="list-style-type: none">▪ Leveraged Transactions▪ Corporate Spinoffs▪ Dividend Recapitalizations▪ Retrospective Solvency Analyses	<p>Tax & Financial Reporting Valuation</p> <ul style="list-style-type: none">▪ Purchase Price Allocation▪ Impairment of Goodwill & Other Assets▪ Tax Valuation▪ Equity-Based Compensation▪ Fresh-Start Accounting	<p>Derivatives Valuation & Risk Management</p> <ul style="list-style-type: none">▪ Structured Products▪ Complex Derivative Instruments	<p>Tax & Financial Reporting</p> <ul style="list-style-type: none">▪ Portfolio Valuations▪ Purchase Price Allocations▪ Tax Valuations	
<p>Valuation Opinions</p> <ul style="list-style-type: none">▪ Distressed Valuation Opinions▪ Estate & Gift Tax Valuation Opinions▪ ERISA & ESOP Opinions▪ Corporate Planning	<p>Tangible Asset Valuation</p> <p>Tech+IP Advisory</p>			

Tax and Financial Reporting Valuation Services

Our valuation services support planning and reporting across multiple jurisdictions and for a variety of situations

Financial Reporting

- Purchase Price Allocation
- Impairment of Goodwill and Other Intangible Assets
- Fair Value of Minority Equity Investments (ASU 2016-01)
- Stock-Based Compensation
- Impairment of Long-Lived Assets
- Fair Value Measurements (Warrants and Other Near-Term Contingencies)
- Accounting for Derivative Instruments and Hedging Activities
- Accounting for Asset Retirement Obligations
- Fresh-Start Accounting

Tax Planning and Reporting

- Purchase Price Allocation
- Net Operating Loss
- Nonqualified Deferred Compensation Plans
- Transfer Pricing
- Interest Expense Allocation
- Worthless Stock Election
- Noncash Charitable Contribution
- Transfer Partnership Interests
- Link-Kind Exchanges
- S Corp. Built-In Gains
- Tax Restructuring

Houlihan Lokey Brings You a Distinguished Level of Service Through



Tech+IP Advisory Practice

Strategic Transactions, Valuation, Analytics

Summary of Services

Valuations

- Tech+IP Valuation
- Strategic Alternatives

Strategic Transactions

- Programmatic Buyside
- Programmatic Sellside

Analytics

- Market-Focused

Overview

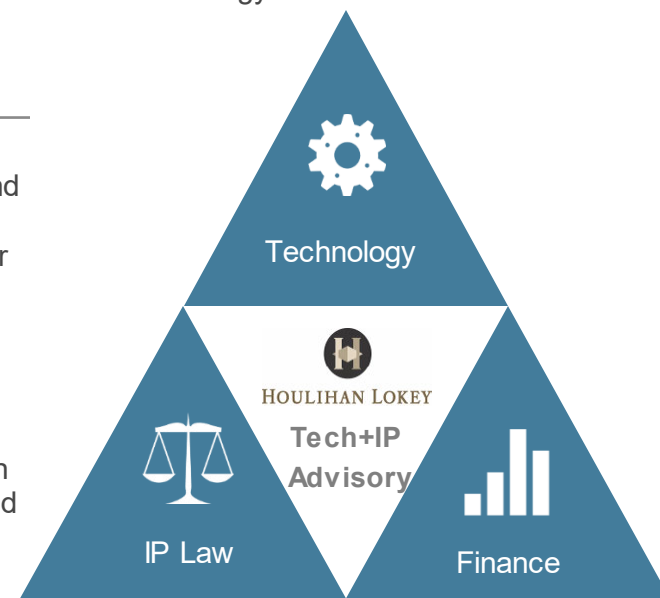
We value and trade our clients' Tech+IP assets: The Tech+IP practice creates “smart value,” novel ideas, and workable solutions for our clients. Our multidisciplinary technical, IP legal, and financial teams have extensive market knowledge, executive-level relationships, and forward-thinking solutions that distinguish us as an industry leader. The Tech+IP team digs in and uses its deep expertise and insights to evaluate strategic alternatives and create tradable deals. We provide strategic buyside and sellside transaction, valuation, diligence, IP-backed capital formation, and restructuring services focused on Tech+IP for hundreds of innovative companies and market leaders globally.

Summary of Qualifications

We provide strategic transaction, valuation, M&A advisory, IP-backed capital formation, restructuring, and analytic services focused on Tech+IP for hundreds of innovative companies and market leaders globally. Our clients run the gamut from global 100 corporations to emerging and midsize companies throughout North America, Europe, and East Asia. We serve clients in a wide array of industry sectors—with the common denominator that intellectual property or technology creation, protection, risk assessment, and monetization are important to both the client's own business plan and the plans of its competitors. The world's most sophisticated companies, and their advisors, bring us their toughest Tech+IP challenges.

Industry and Technology Expertise

- Consumer Electronics
- Semiconductors & Sensors
- Internet & Enterprise Software
- Medical Devices & Diagnostics
- Communications Technologies
- Security & FinTech
- Digital Media
- Industrials, Materials & Automotive
- Energy





Houlihan Lokey is the trusted advisor to more top decision-makers than any other independent global investment bank.

Corporate Finance

2017 M&A Advisory Rankings All U.S. Transactions

	Advisor	Deals
1	Houlihan Lokey	174
2	Goldman Sachs & Co	173
3	JP Morgan	164
4	Morgan Stanley	132
5	Barclays	106

Source: Thomson Reuters

No. 1 U.S. M&A Advisor

Top 10 Global M&A Advisor

Leading Capital Markets Advisor

Financial Restructuring

2017 Global Distressed Debt & Bankruptcy Restructuring Rankings

	Advisor	Deals
1	Houlihan Lokey	63
2	Rothschild & Co.	48
3	Lazard	36
4	PJT Partners LP	35
5	Moelis & Co.	22

Source: Thomson Reuters

No. 1 Global Restructuring Advisor

1,000+ Transactions Completed
Valued at More Than \$2.5 Trillion
Collectively

Financial Advisory

1997 to 2017 Global M&A Fairness Advisory Rankings

	Advisor	Deals
1	Houlihan Lokey	1,001
2	JP Morgan	959
3	Bank of America Merrill Lynch	699
4	Duff & Phelps	672
5	Morgan Stanley	660

Source: Thomson Reuters. Announced or completed transactions.

No. 1 Global M&A Fairness Opinion
Advisor Over the Past 20 Years

1,000+ Annual Valuation
Engagements

Our product knowledge, industry expertise, and global reach deliver superior results.

Product Expertise

Mergers & Acquisitions

Capital Markets

Financial Restructuring

Financial Advisory

Strategic Consulting

Dedicated Industry Groups

Business Services

Consumer, Food & Retail

Data & Analytics

Energy

Financial Institutions

Healthcare

Industrials

Real Estate, Lodging & Leisure

Technology•Media•Telecom

Financial Sponsors

Active Dialogue With a Diverse Group of More Than 550 Sponsors

Private Equity Firms

Hedge Funds

Capital Alliances

Our clients benefit from our local presence and global reach.

North America

Atlanta
Chicago
Dallas
Houston
Los Angeles
Miami
Minneapolis
New York
San Francisco
Washington, D.C.

Europe & Middle East

Amsterdam
Dubai
Frankfurt
London
Madrid
Milan
Paris

Asia-Pacific

Beijing
Hong Kong
Singapore
Sydney
Tokyo

**CORPORATE FINANCE
FINANCIAL ADVISORY SERVICES
FINANCIAL RESTRUCTURING
STRATEGIC CONSULTING**

HL.com