



2018 Purchase Price Allocation Study

JUNE 2020

Table of Contents

	Page
1. About Houlihan Lokey	3
2. Executive Summary	9
3. 2018 Observations and Results	17
4. Disclaimers	46

About Houlihan Lokey



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

Corporate Finance

2019 M&A Advisory Rankings All U.S. Transactions		
	Advisor	Deals
1	Houlihan Lokey	184
2	Goldman Sachs & Co	167
3	JP Morgan	141
4	Morgan Stanley	122
5	Evercore Partners	112

Source: Refinitiv (formerly known as Thomson Reuters)

No. 1 U.S. M&A Advisor

Top 10 Global M&A Advisor

Leading Capital Markets Advisor

Financial Restructuring

2019 Global Distressed Debt & Bankruptcy Restructuring Rankings		
	Advisor	Deals
1	Houlihan Lokey	76
2	PJT Partners Inc	43
3	Moelis & Co	36
4	Lazard	29
5	AlixPartners	19

Source: Refinitiv (formerly known as Thomson Reuters)

No. 1 Global Restructuring Advisor

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

Financial and Valuation Advisory

2000 to 2019 Global M&A Fairness Advisory Rankings		
	Advisor	Deals
1	Houlihan Lokey	1,057
2	JP Morgan	929
3	Duff & Phelps	734
4	Morgan Stanley	621
5	Bank of America Merrill Lynch	612

Refinitiv (formerly known as 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 and Acquisitions

Capital Markets

Financial Restructuring

Financial and Valuation Advisory

Dedicated Industry Groups

Business Services

Consumer, Food, and Retail

Data and Analytics

Energy

Financial Institutions

Healthcare

Industrials

Real Estate, Lodging, and Leisure

Technology, Media, and Telecom

Financial Sponsors

Active Dialogue With a Diverse Group of More Than 1,000 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 and Middle East

Amsterdam
Dubai
Frankfurt
London
Madrid
Milan
Paris

Asia-Pacific

Beijing
Hong Kong
Singapore
Sydney
Tokyo

No. 1 Position Across Product Categories



HOULIHAN LOKEY

Corporate Finance

Mergers and Acquisitions

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

Capital Markets

- Debt and Equity Private Placements
- Public Equity Offerings
- PIPEs Financings
- Liabilities Management
- Special Situations Advisory

Illiquid Financial Assets

No. 1 M&A Advisor for All U.S.
Transactions in 2019

Financial and Valuation Advisory

- Corporate Valuation Advisory Services
- Real Estate Valuation and Advisory Services
- Derivatives Valuation and Advisory Services
- Due Diligence Services
- Valuation Opinions
- Portfolio Valuation and Fund Advisory
- Fairness Opinions
- Solvency Opinions
- Dispute Resolution and Financial Expert Opinions

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

Financial Restructuring

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

No. 1 Global Investment Banking
Restructuring Advisor

Financial and Valuation Advisory Overview

Transaction Opinions

- Fairness Opinions
 - Public Company
 - Special Committee
 - Roll-Up/Aggregate
 - Indenture
 - Equity Allocation
- Solvency Opinions
 - Leveraged Transactions
 - Corporate Spinoffs
 - Dividend Recapitalizations
 - Retrospective Solvency Analyses
- Valuation Opinions
 - Distressed Valuation Opinions
 - Estate and Gift Tax Valuation Opinions
 - ERISA and ESOP Opinions
 - Corporate Planning

Transaction Advisory Services

- Due Diligence Services
 - Buyer Services
 - Seller Services
 - Lender Services
- Corporate Valuation Advisory Services
 - Purchase Price Allocation
 - Impairment of Goodwill and Other Assets
 - Tangible Asset Valuation
 - Tax Valuation
 - Equity-Based Compensation
 - Fresh-Start Accounting
- Accounting and Financial Reporting Advisory
 - Purchase Accounting
 - Carve-Out Financial Information
 - SEC Reporting
 - Initial Public Offerings
 - Fresh-Start Accounting
 - Complex Accounting

Portfolio Valuation and Advisory Services

- Fair Value Reporting
 - Illiquid Securities
 - Leveraged Loans
 - PIPEs Investments
 - Real Estate Investments
- Derivatives Valuation and Risk Management
 - Structured Products
 - Complex Derivative Instruments

Real Estate Valuation and Advisory Services

- Valuations and Opinions
 - Fairness Opinions
 - Solvency Opinions
 - Corporate Planning
 - Expert Witness
- Corporate Valuation Advisory Services
 - Portfolio Valuations
 - Purchase Price Allocations
 - Tax Valuations

Financial Consulting

- Dispute Resolution and Financial Expert Opinions
 - Case Assessment
 - Financial Modeling
 - Damage Theory Formulation
 - Settlement Assistance
 - Expert Witness Testimony

Executive Summary

Introduction

Dear All,

Thank you very much for taking time to read Houlihan Lokey's 2018 Purchase Price Allocation Study (2018 Study). Houlihan Lokey completed its 2018 Study by reviewing public filings for 2,428 completed transactions in 2018 and summarizing the results for certain transactions by transaction size and industry. The 2018 Study also provides statistics, other annual data, and a comparison to certain 2017 results (2017 Study) and 2016 results (2016 Study). Key observations from the 2018 Study include the following:

- The number of transactions that meet our search criteria increased 92% year over year to 2,428 because we incorporated data from multiple providers (S&P Capital IQ, Bloomberg, and Dealogic) for the 2018 Study, as compared to a single provider (S&P Capital IQ) for the 2017 Study.
- According to the 2018 Study, technology was the most active sector for M&A activities, although the aerospace, defense, and government sector had the largest average transaction size.
- Identifiable intangible assets and goodwill as percentages of purchase consideration remained relatively stable year over year, and the technology sector had the highest percentage of goodwill.
- Contingent consideration (CC) remained an important part of many transactions. Approximately 19% of the transactions in the 2018 Study had CC in the purchase consideration, which is slightly down from 21% in the 2017 Study.
- With the exception of consumer, food, and retail transactions, in which trademarks and trade names are considered a key asset, the main identifiable intangible assets across all industries are technology- and customer-related.

I hope you will find the 2018 Study helpful. Thank you again for reading this. We are excited to hear your comments and feedback.

Best,

A handwritten signature in black ink, appearing to read 'Dimitri Drone', with a stylized flourish extending to the right.

Dimitri Drone

Managing Director, Head of Corporate Valuation Advisory Services

Introduction (cont.)

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



Michael DeLuke
Managing Director
214.220.8487
MDeLuke@HL.com



Dimitri Drone
Managing Director
646.259.7480
DDrone@HL.com



Mike Giffin
Managing Director
214.220.8485
MGiffin@HL.com



Karen Miles
Managing Director
310.788.5243
KMiles@HL.com



Tomasz Stefanowski
Managing Director
212.497.4272
TStefanowski@HL.com



Michael De Simone
Managing Director
404.495.7033
MDeSimone@HL.com

Office Locations

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

Chicago
111 South Wacker Dr.
37th Floor
Chicago, IL 60606
312.456.4700

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

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

New York
245 Park Ave.
20th Floor
New York, NY 10167
212.497.4272

San Francisco
Citigroup Center
One Sansome St.
Suite 1700
San Francisco, CA 94104
415.974.5888

Screening Criteria and Methodology

The universe of transactions initially considered in the 2018 Study was obtained using the following search criteria:

- Combined transactions available in S&P Capital IQ, Bloomberg, and Dealogic. Removed duplicate transactions.
- Transaction closed in 2018.
- Acquirer was:
 - An SEC registrant filing 10-K, 10-Q, 20-F, or 40-F in 2018 (S&P Capital IQ);
 - Publicly listed in the U.S., excluding foreign OTC issuers (Bloomberg); and
 - A U.S. public company (Dealogic).
- We excluded transactions completed by investment firms.
- We excluded transactions with multiple acquirers.
- Transaction value was disclosed.

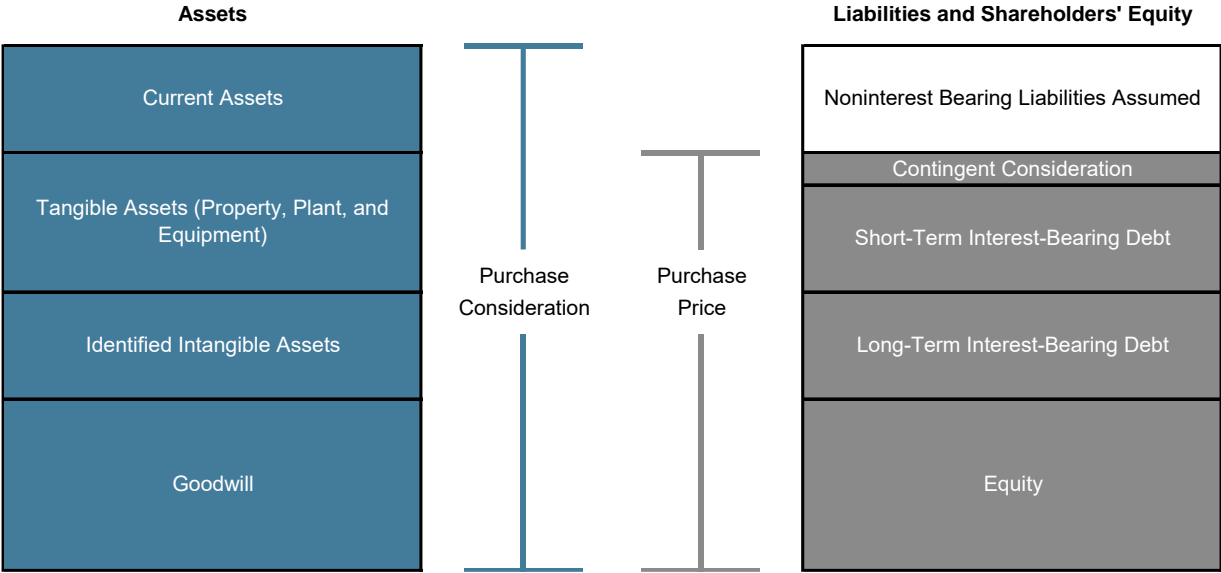
The initial sample consisted of 2,428 transactions. We reviewed public filings for each company in the initial sample with the objective of finding detailed disclosures regarding purchase consideration (PC), identifiable intangible asset fair values, and goodwill. Sufficient disclosures were provided for 715 transactions, which represented approximately 29% of the initial sample.

These 715 transactions formed the basis of the 2018 Study.



Screening Criteria and Methodology (cont.)

The primary objective of the 2018 Study was to review the amount of PC allocated to tangible assets, identifiable intangible assets, and goodwill. In addition, the 2018 Study marks the sixth year that 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 2018 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 noncompete 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), and lifing characteristics.

- With respect to industry, we classified the 2018 transactions into nine sectors:
 - Aerospace, defense, and government (ADG)
 - Consumer, food, and retail (CFR)
 - Energy
 - Financial institutions
 - Healthcare
 - Industrials
 - Infrastructure services and materials (ISM)
 - Technology
 - Telecom
- With respect to deal size, we stratified the allocation results across seven categories (PC; \$ in millions):
 - More than \$5,000
 - \$1,000–\$5,000
 - \$500–\$1,000
 - \$250–\$500
 - \$100–\$250
 - \$50–\$100
 - Less than \$50
- With respect to lifing characteristics, we classified the summarized data for intangibles as either definite- or indefinite-lived assets.
- 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 a definite-lived asset in the 2018 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.

Allocation of Intangible Assets vs. Goodwill

Summary Allocation Percentages 2018 Study

- The median allocation of PC to intangible assets in 2018 and 2017 was 33% and 35%, respectively.
- The median allocation of PC to goodwill in 2018 and 2017 was 41% and 40%, respectively.
- Industries with intangible assets and goodwill percentage above the mean and median include healthcare and technology.

Summary Allocation Percentages by Industry 2018 vs. 2017

\$ in millions

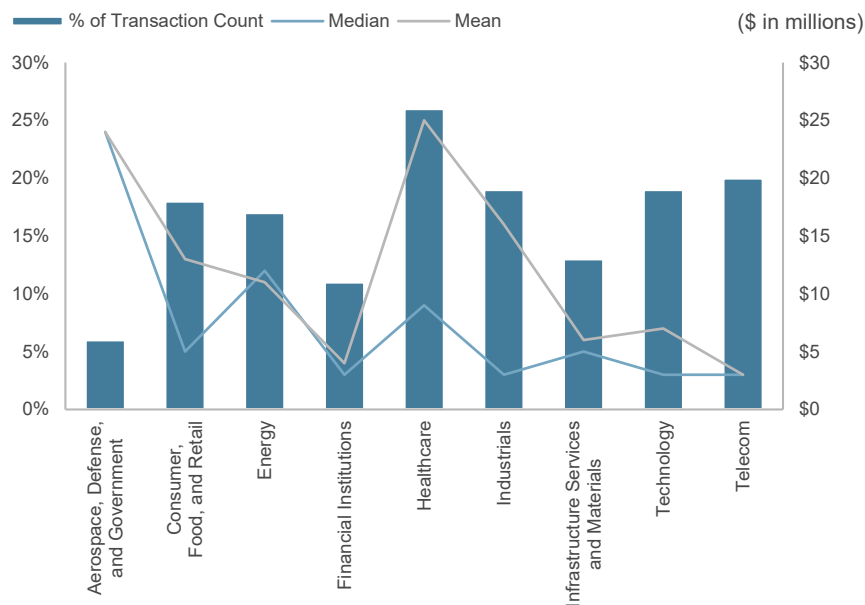
	Count ⁽¹⁾		Median Results								
			Purchase Consideration			Intangible Assets, % of PC			Goodwill, % of PC		
	2018	2017	2018	2017	% Chg.	2018	2017	BPS Chg.	2018	2017	BPS Chg.
All Industries	715	404	97	95	2%	33%	35%	-2%	41%	40%	1%
Aerospace, Defense, and Government	17	21	872	199	338%	26%	37%	-11%	44%	42%	2%
Consumer, Food, and Retail	166	86	105	78	33%	32%	37%	-5%	37%	33%	4%
Energy	24	19	90	345	-74%	22%	12%	11%	25%	30%	-5%
Financial Institutions	44	21	123	716	-83%	28%	17%	10%	35%	11%	24%
Healthcare	119	62	112	77	45%	46%	39%	6%	42%	41%	0%
Industrials	100	54	84	82	3%	33%	33%	0%	39%	34%	6%
Infrastructure Services and Materials	24	18	342	234	46%	17%	36%	-20%	25%	37%	-12%
Technology	196	117	59	75	-21%	35%	35%	0%	51%	49%	2%
Telecom	25	6	137	147	-7%	32%	28%	4%	34%	40%	-6%

(1) We incorporated data from multiple providers (S&P Capital IQ, Bloomberg, and Dealogic) for the 2018 Study as compared to a single provider (S&P Capital IQ) for the 2017 Study. Note: Purchase consideration represents the equivalent to total assets, including equity, debt, and noninterest-bearing liabilities assumed, as applicable. Includes transactions done by U.S.-listed public company acquirers completed in 2018.

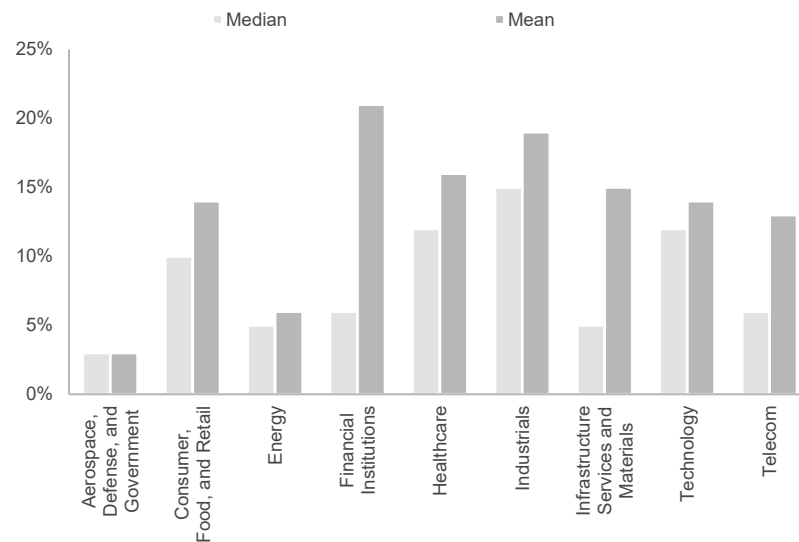
Contingent Consideration

- 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 19% of the transactions in the 2018 Study had CC in the purchase price, down from 21% of transactions in the 2017 Study.
- CC represented 10% and 15% of PC when measured on the median and mean, respectively. CC represented 14% and 18% of PC when measured on the median and mean, respectively, in the 2017 Study.

CC Amount and as Percentage of Transaction Count



CC as Percentage of Purchase Consideration



- 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 generally 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.

2018 Observations and Results

Transaction Volume

- Final results indicate that the U.S. economy expanded during the third quarter of 2018, as GDP, the value of all goods and services in the U.S., increased at an annualized rate of 3.4%. This follows an annualized GDP increase of 4.2% recorded in the second quarter of 2018. The deceleration in real GDP growth in the third quarter reflected a downturn in exports and decelerations in nonresidential fixed investment in personal consumption expenditures. Imports, which are a subtraction in the calculation of GDP, increased in the third quarter after decreasing in the second, which was partly offset by an upturn in private inventory investment.⁽¹⁾
- The number of transactions with sufficient disclosures for analysis increased 77% year over year—from 404 in 2017 to 715 in 2018.
- Our initial screening generated a population of 2,428 transactions. Of these deals, 1,713 transactions were not considered for the following two 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 number of initial transactions increased 92% year over year—from 1,266 in 2017 to 2,428 in 2018—because we incorporated data from multiple providers (S&P Capital IQ, Bloomberg, and Dealogic) for the 2018 Study as compared to a single provider (S&P Capital IQ) for the 2017 Study.
- The percentage of transactions with sufficient disclosures decreased to 29% in 2018—from 32% in 2017.

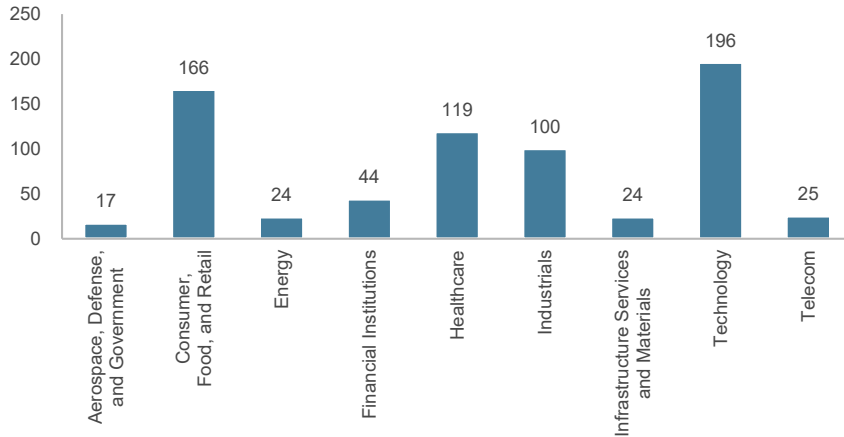
(1) Bureau of Economic Analysis, December 21, 2018, pages 2 and 7.

Industry Results

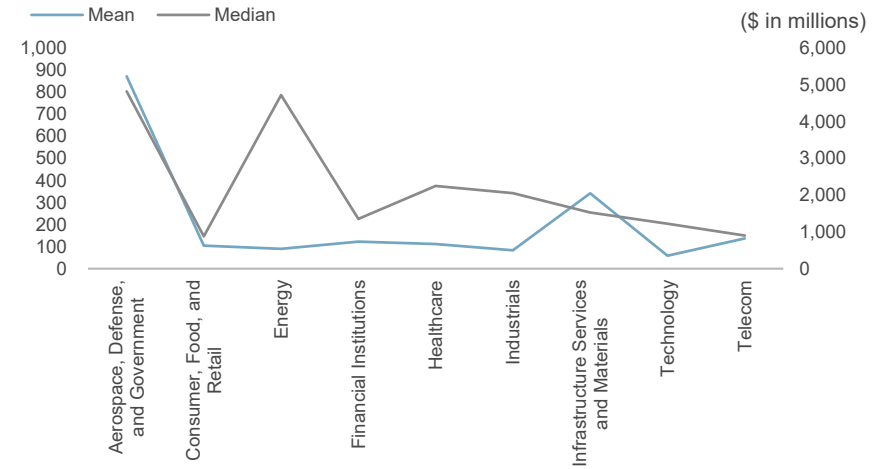
- Only one of the nine industries experienced year-over-year declines in the number of transactions available for the 2018 Study, relative to the 2017 Study.
 - In the 2018 Study, 17 observed transactions allocated PC to intangible assets or goodwill within the aerospace, defense, and government industry, down from 21 transactions in the 2017 Study.
 - Telecom had the largest percentage increase, up 19 transactions from the previous year.
- When measured across all industries, the median percentage of PC allocated to identifiable intangible assets slightly decreased—from 35% in 2017 to 33% in 2018. Four out of the nine industries showed only a small change (i.e., 5% or less) in the median amount of PC allocated to identifiable intangible assets compared with 2017.
 - Energy recorded the largest percentage increase of 11% for PC allocated to identifiable intangible assets.
 - Infrastructure services and materials recorded the largest percentage decrease out of all industries at 20% for PC allocated to identifiable intangible assets.
- The median percentage of PC allocated to goodwill increased slightly to 41% in 2018 from 40% in 2017.
 - Financial institutions represented the highest percentage increase in goodwill allocation at 24% year over year.

Industry Results (cont.)

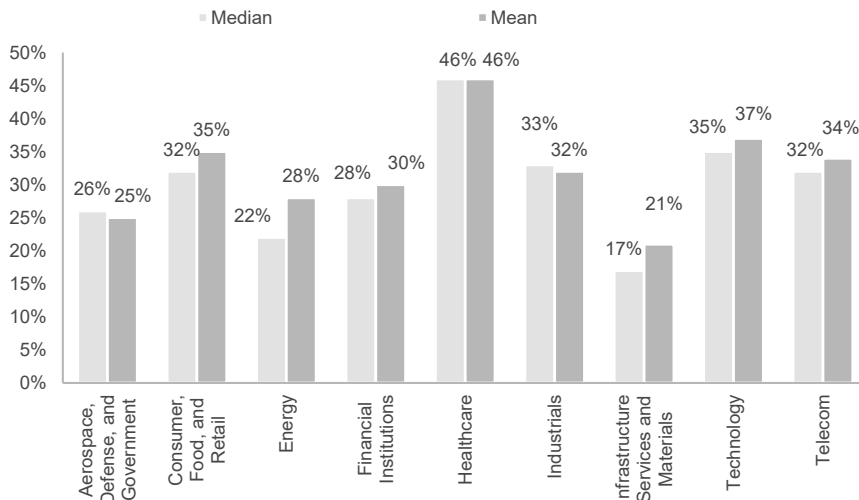
Transaction Count



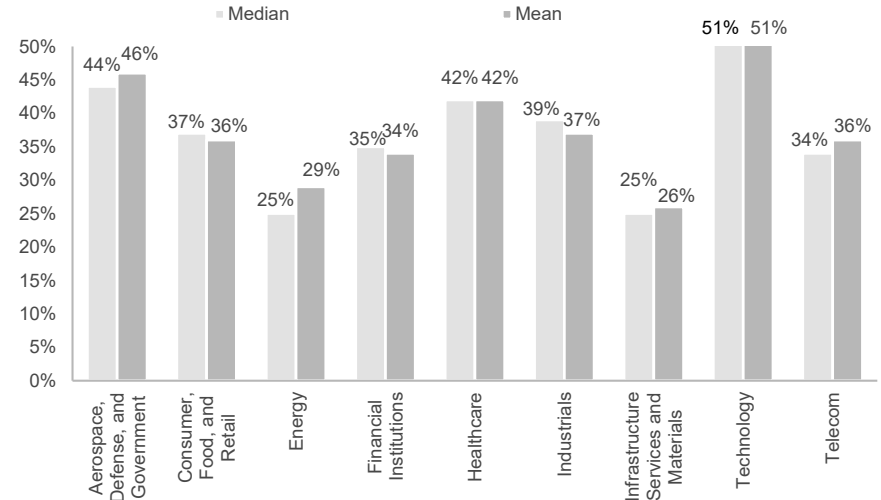
Purchase Consideration



Intangible Assets as Percentage of Purchase Consideration



Goodwill as Percentage of Purchase Consideration

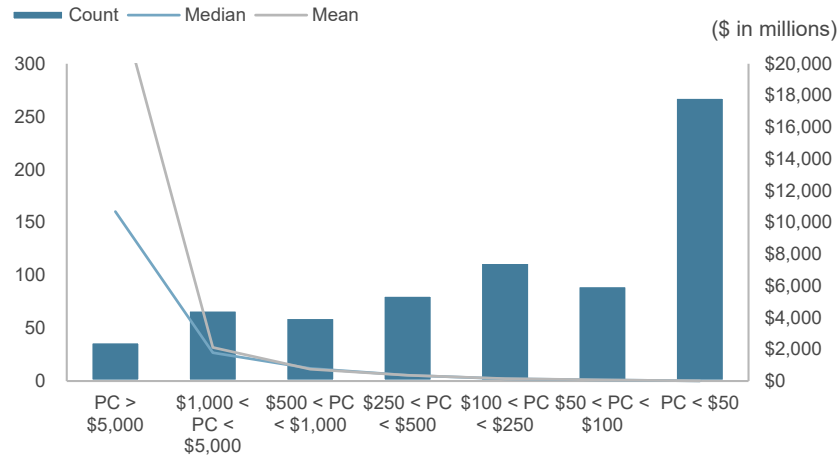


Transaction Size

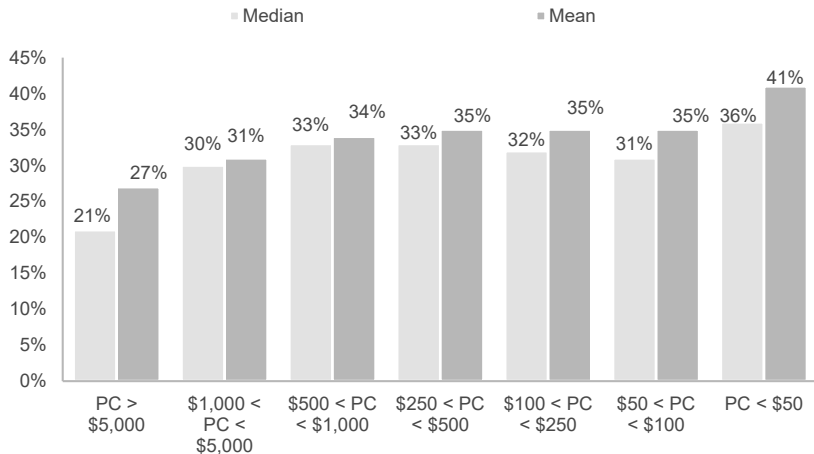
- Approximately 66% of the transactions in the 2018 Study had PC below \$250 million, which remains the same when compared with the 66% of 2017.
- In 2018, larger transactions generally recorded lower allocations to intangible assets and higher allocations to goodwill.
 - For transactions with PC below \$250 million, intangible assets and goodwill averaged 37% and 38% of PC, respectively. In 2017, the corresponding percentages of allocation to intangible assets and goodwill were each at 38% and 37%.
 - For transactions with PC above \$250 million, intangible assets and goodwill averaged 32% and 40% of PC, respectively. In 2017, the corresponding percentages of allocation to intangible assets and goodwill were 29% and 38%, respectively.
- From 2017 to 2018, the average transaction size decreased from \$1,648 million to \$1,639 million, and the median transaction size increased from \$95 million to \$97 million.

Transaction Size (cont.)

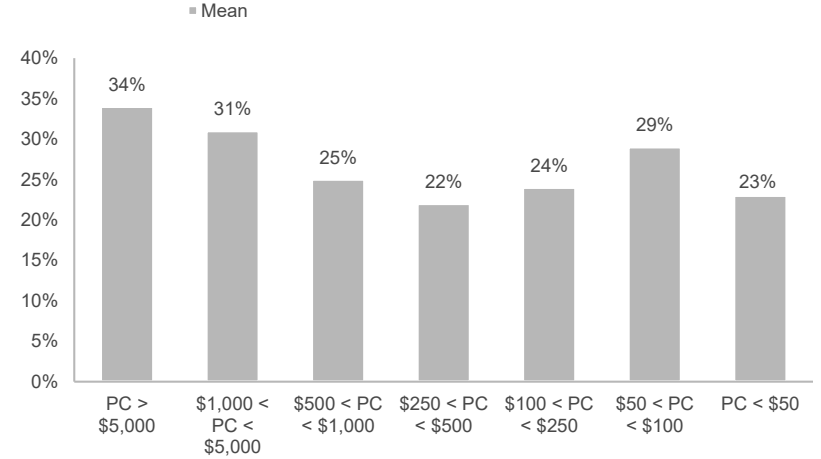
Transaction Count and Purchase Consideration



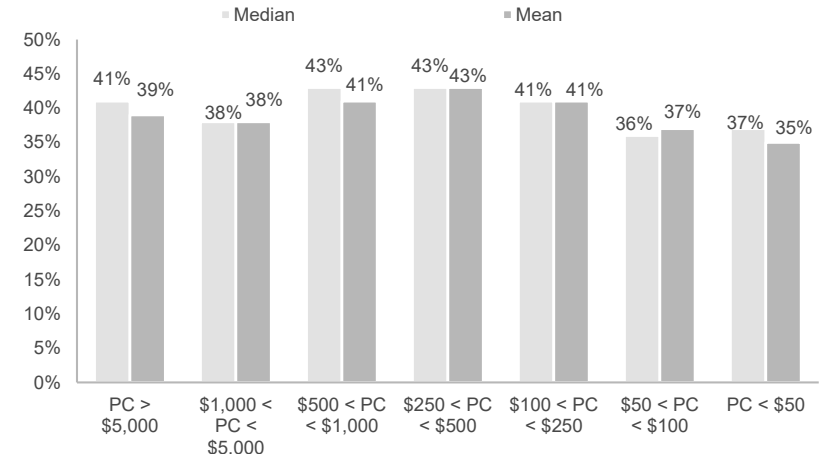
Intangible Assets as Percentage of Purchase Consideration



Tangible Assets as Percentage of Purchase Consideration



Goodwill as Percentage of Purchase Consideration



Transaction Size (cont.)

Summary Allocation Percentages by Size 2018 vs. 2017

<i>\$ in millions</i>	Count⁽¹⁾		Median Goodwill, % of PC		
	2018	2017	2018	2017	% Chg.
	All Transactions	715	404	41%	40%
PC > \$5,000	37	27	41%	40%	0%
\$1,000 < PC < \$5,000	67	46	38%	34%	11%
\$500 < PC < \$1,000	60	33	43%	40%	7%
\$250 < PC < \$500	81	33	43%	42%	1%
\$100 < PC < \$250	112	58	41%	41%	1%
\$50 < PC < \$100	90	41	36%	35%	1%
PC < \$50	268	166	37%	36%	2%

(1) We incorporated data from multiple providers (S&P Capital IQ, Bloomberg, and Dealogic) for the 2018 Study as compared to a single provider (S&P Capital IQ) for the 2017 Study.

Indefinite-Lived Intangible Assets

- Indefinite-lived intangible assets accounted for approximately 17% of the total intangible asset value in 2018, as compared with 12% in 2017.
- Trademarks and trade names were the most common intangible assets to be considered indefinite-lived.
 - In 2018, the percentage of transactions in the sample that ascribed PC to trademarks and trade names decreased from 65% to 63%.
 - Acquirers considered 22% of the purchased trademarks and trade names to be indefinite-lived assets in 2018, as compared with 22% in 2017 and 23% in 2016.
- Other intangible assets classified as indefinite-lived included (but were not limited to) license agreements, franchise licenses, artistic-related assets, and content/databases.

Trademark and Trade Name Lifting Classification 2016–2018

Trademarks and Trade Names	2018		2017		2016	
	Count	% of Total	Count	% of Total	Count	% of Total
All Indefinite-Lived	99	22%	57	22%	52	23%
All Definite-Lived	352	78%	206	78%	178	77%
Mix of Definite- and Indefinite-Lived	0	0%	0	0%	0	0%
Total	451	100%	263	100%	230	100%

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 2018

\$ 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
12/20/2018	Cigna Corp. (NYSE:CI)	Express Scripts Holding Co.	\$94,775	\$8,400	9%	43%	Trademark and Trade Name
10/11/2018	Comcast Corp. (NASDAQGS:CMCS.A)	Sky Ltd.	\$60,105	\$6,800	11%	34%	Trademark and Trade Name
8/18/2018	Walmart Inc. (NYSE:WMT)	Flipkart Private Ltd.	\$24,100	\$4,700	20%	21%	Trademark and Trade Name
11/28/2018	CVS Health Corp. (NYSE:CVS)	Aetna Inc.	\$111,253	\$4,100	4%	21%	Trademark and Trade Name
4/24/2018	General Mills, Inc. (NYSE:GIS)	Blue Buffalo Pet Products, Inc.	\$8,269	\$2,700	33%	36%	Trademark and Trade Name
3/26/2018	Campbell Soup Co. (NYSE:CPB)	Snyder's-Lance, Inc.	\$7,067	\$2,131	30%	42%	Trademark and Trade Name
12/5/2018	PepsiCo, Inc. (NASDAQGS:PEP)	SodaStream International Ltd.	\$3,250	\$1,993	61%	75%	Trademark and Trade Name
11/26/2018	United Technologies Corp. (NYSE:UTX)	Collins Aerospace	\$37,670	\$1,870	5%	29%	Trademark and Trade Name
10/31/2018	Linde plc (NYSE:LIN)	Linde AG	\$73,643	\$1,648	2%	21%	Trademark and Trade Name
7/16/2018	Caesars Entertainment Corp. (NASDAQGS:CZR)	Centaur Holdings, LLC	\$2,084	\$1,390	67%	69%	License Agreement

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, noncompete agreements, licenses, permits, and other contracts or agreements.
- Developed technology and IPR&D recorded increases in the frequency of identification from 2017 to 2018.
- With respect to the amount of PC allocated to each of these categories from 2017 to 2018, customer-related assets decreased while trademarks and trade names stayed flat.

Frequently Identified Intangible Assets 2016–2018

	Count, % of Sample			Median % of PC		
	2018	2017	2016	2018	2017	2016
Developed Technology	54%	51%	49%	12%	11%	11%
<i>Change</i>	3%	3%	5%	1%	0%	-1%
IPR&D	9%	7%	12%	15%	4%	6%
<i>Change</i>	1%	-4%	2%	11%	-2%	-9%
Customer-Related Assets	77%	79%	69%	16%	19%	18%
<i>Change</i>	-2%	10%	0%	-3%	1%	0%
Trademarks and Trade Names	63%	65%	49%	3%	3%	4%
<i>Change</i>	-2%	16%	-1%	0%	0%	0%

Aerospace, Defense, and Government

- In the 2018 Study, 17 observed transactions allocated PC to intangible assets or goodwill within the aerospace, defense, and government (ADG) industry, down from 21 transactions in the 2017 Study.
- Within the ADG industry, customer-related assets were allocated the highest percentage of PC to any identifiable intangible asset, with 18% and 16% 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 ADG industry was developed technology, with 8% and 16% of PC allocated to these assets on a median-and-mean basis, respectively.

Summary of PC Allocated to Intangible Assets (ADG) 2018 Study

	Count		PC		% of PC			
	Number	%	Median	Mean	Low	High	Median	Mean
Developed Technology	9	53%	\$246	\$5,730	2%	40%	8%	16%
IPR&D	1	6%	11,477	11,477	7%	7%	7%	7%
Trademarks and Trade Names	7	41%	246	5,690	1%	5%	2%	3%
Customer-Related Assets	16	94%	878	5,125	2%	33%	18%	16%
Other Identifiable Intangible Assets	2	12%	NA	NA	0%	1%	NA	NA
Goodwill	17	100%	872	4,824	25%	68%	44%	46%

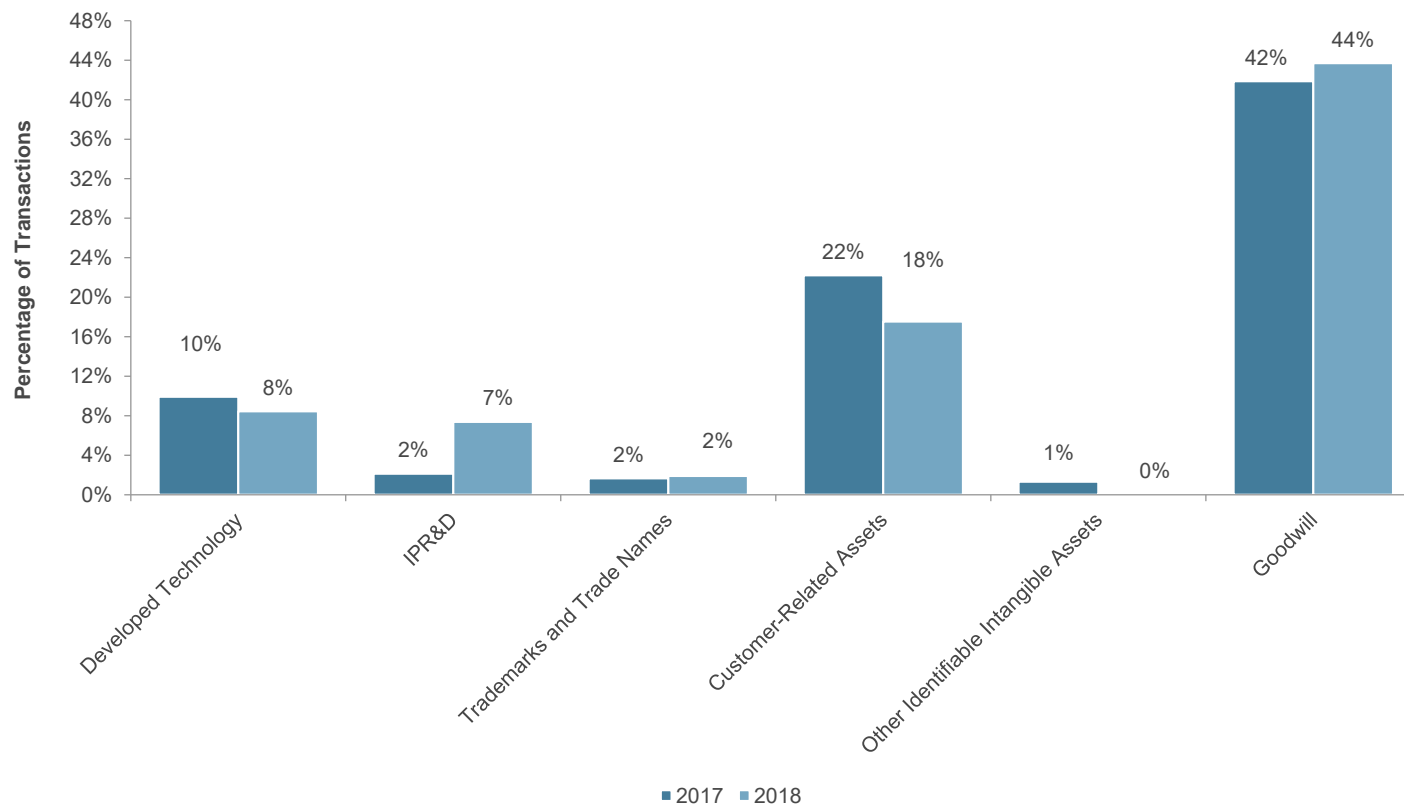
- Notable transaction activity in this industry included the following:

Date	Acquirer	Target	PC	Total % Allocated to Intangible Assets
4/2/2018	General Dynamics Corp. (NYSE:GD)	CSRA Inc.	\$11,628	18%
5/29/2018	Microchip Technology Inc. (NASDAQGS:MCHP)	Microsemi Corp.	\$11,477	49%
6/6/2018	Northrop Grumman Corp. (NYSE:NOC)	Northrop Grumman Innovation Systems, Inc.	\$11,490	13%
10/9/2018	Boeing Co.	KLX Inc. (KLX Aerospace Solutions Group, 100%)	\$5,023	19%
11/26/2018	United Technologies Corp. (NYSE:UTX)	Collins Aerospace	\$37,670	29%

Aerospace, Defense, and Government (cont.)

- As illustrated below, PC allocations to all intangible assets and goodwill changed by 5% or less from the 2017 Study to the 2018 Study.
- In the 2018 Study, goodwill continued to receive the highest allocation among any intangible asset, with 44% of PC within the ADG industry being allocated to goodwill on a median basis, which is up from 42% in the 2017 Study.

Distribution of PC Allocated to Intangible Assets and Goodwill
2018 Study vs. 2017 Study



Consumer, Food, and Retail

- In the 2018 Study, 166 observed transactions allocated PC to intangible assets or goodwill within the CFR industry, up from 86 transactions in the 2017 Study.
- 8% and 14% of PC were allocated to trademarks and trade names on a median-and-mean basis, respectively.
- 15% and 17% of PC were allocated to customer-related assets on a median-and-mean basis, respectively.

Summary of PC Allocated to Intangible Assets (CFR) 2018 Study

	Count		PC		% of PC			
	Number	%	Median	Mean	Low	High	Median	Mean
Developed Technology	61	37%	\$78	\$784	0%	99%	7%	16%
IPR&D	4	2%	63	108	3%	26%	8%	11%
Trademarks and Trade Names	122	74%	130	1,062	0%	100%	8%	14%
Customer-Related Assets	122	74%	139	808	0%	69%	15%	17%
Other Identifiable Intangible Assets	82	50%	190	929	0%	85%	4%	11%
Goodwill	155	95%	125	929	0%	94%	37%	36%

- Notable transaction activity in this industry included the following:

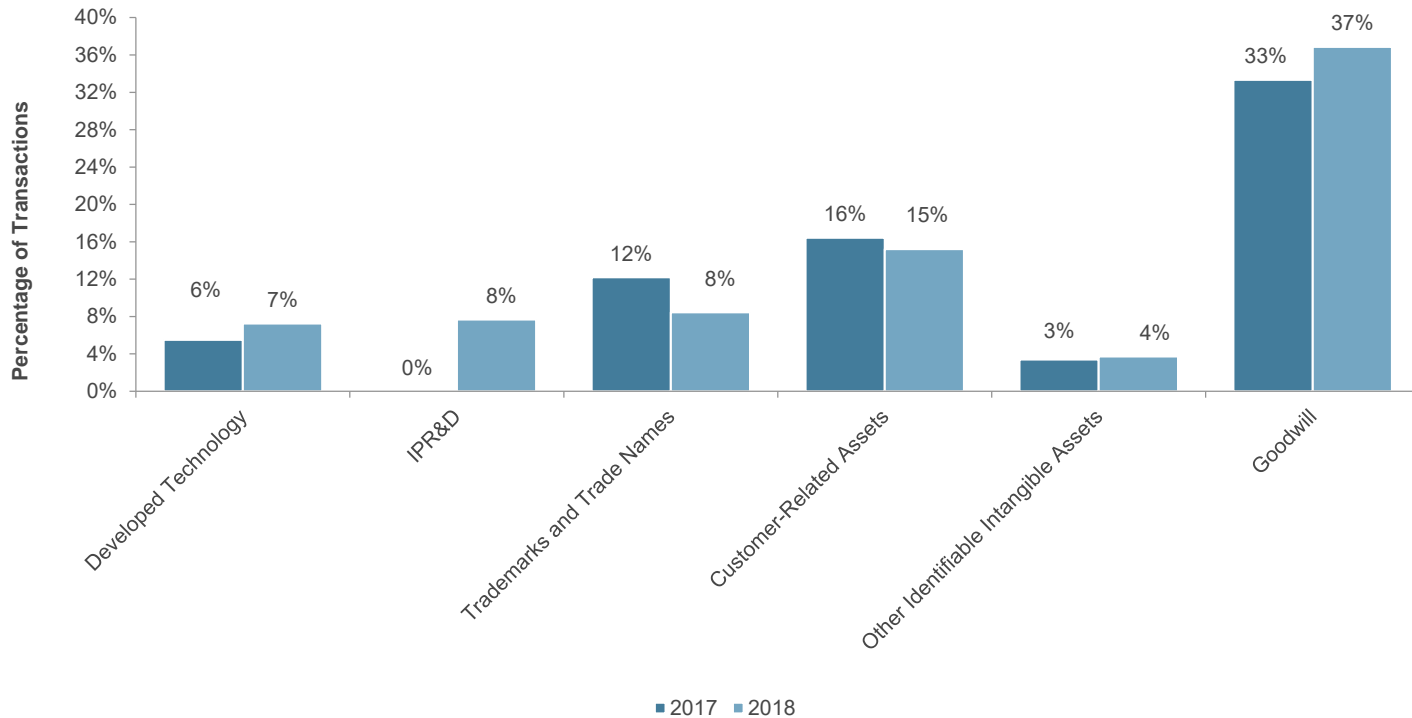
\$ in millions

Date	Acquirer	Target	PC	Total % Allocated to Intangible Assets
3/26/2018	Campbell Soup Co. (NYSE:CPB)	Snyder's-Lance, Inc.	\$7,067	42%
4/24/2018	General Mills, Inc. (NYSE:GIS)	Blue Buffalo Pet Products, Inc.	\$8,269	36%
8/18/2018	Walmart Inc. (NYSE:WMT)	Flipkart Private Ltd.	\$24,100	21%
9/1/2018	Marriott Vacations Worldwide Corp. (NYSE:VAC)	ILG, LLC	\$6,215	19%
10/15/2018	Penn National Gaming, Inc. (NASDAQGS:PENN)	Pinnacle Entertainment, Inc.	\$6,800	20%

Consumer, Food, and Retail (cont.)

- As illustrated below, there have not been material changes (+/- 5% or more) in the allocation percentage to any particular intangible asset from the 2017 Study to the 2018 Study.
- In the 2018 Study, goodwill continued to receive the highest allocation among any intangible asset, with 37% of PC within the CFR industry being allocated to goodwill on a median basis, which is up from 33% in the 2017 Study.

Distribution of PC Allocated to Intangible Assets and Goodwill
2018 Study vs. 2017 Study



Energy

- In the 2018 Study, 24 observed transactions allocated PC to intangible assets or goodwill within the energy industry, which is up from 19 transactions in the 2017 Study.
- Within the energy industry, IPR&D was allocated the highest percentage of PC to any identifiable intangible asset, with 24% and 24% of PC being allocated to this asset on a median-and-mean basis, respectively.

Summary of PC Allocated to Intangible Assets (Energy) 2018 Study

	Count		PC		% of PC			
	Number	%	Median	Mean	Low	High	Median	Mean
Developed Technology	5	21%	\$48	\$12,383	0%	64%	9%	21%
IPR&D	2	8%	491	491	2%	46%	24%	24%
Trademarks and Trade Names	12	50%	119	4,051	1%	14%	2%	4%
Customer-Related Assets	20	83%	125	5,665	1%	59%	15%	20%
Other Identifiable Intangible Assets	6	25%	120	10,267	0%	62%	2%	12%
Goodwill	22	92%	90	5,149	2%	64%	25%	29%

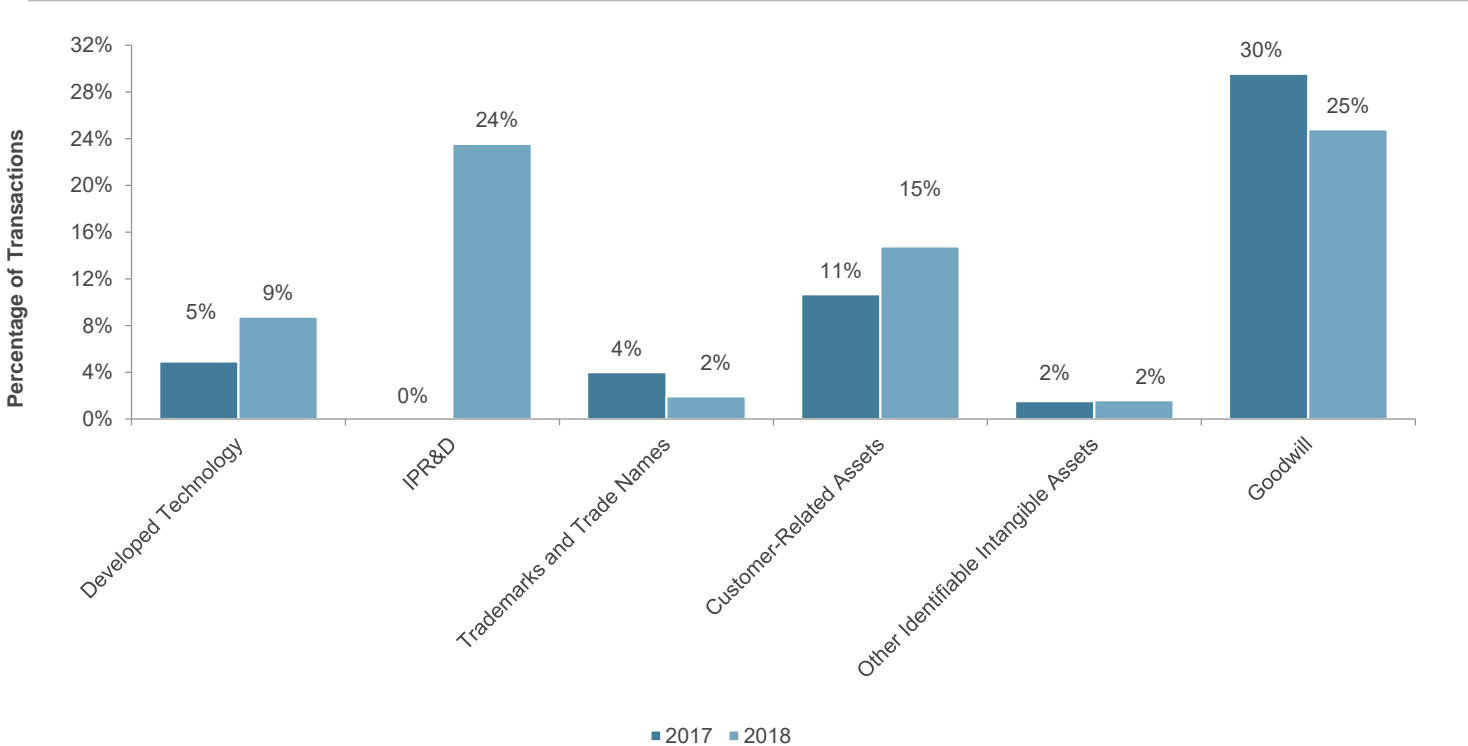
- Notable transaction activity in this industry included the following:

Date	Acquirer	Target	PC	Total % Allocated to Intangible Assets
1/5/2018	Itron Inc.	Itron Networked Solutions Inc.	\$935	26%
4/2/2018	USA Compression Partners LP	CDM Resource Management LLC, CDM Environmental & Technical Services LLC	\$2,721	8%
6/6/2018	National Energy Services Reunited Corp. (NASDAQCM:NESR)	National Petroleum Services Co. KSCC	\$895	10%
10/1/2018	Marathon Petroleum Corp. (NYSE:MPC)	Andeavor	\$45,518	6%
12/17/2018	Enbridge Inc. (TSX:ENB)	Spectra Energy Partners, LP	\$60,889	2%

Energy (cont.)

- As illustrated below, PC allocations to IPR&D and goodwill changed by 5% or more from the 2017 Study to the 2018 Study.
- Goodwill had the largest allocation of PC, with 25% of PC allocated to goodwill in the 2018 Study, which is down from 30% in the 2017 Study.

Distribution of PC Allocated to Intangible Assets and Goodwill
2018 Study vs. 2017 Study



Financial Institutions

- In the 2018 Study, 44 observed transactions allocated PC to intangible assets or goodwill within the financial institutions industry, which is up from 21 transactions in the 2017 Study.
- Within the financial institutions industry, customer-related assets were allocated the highest percentage of PC to any identifiable intangible asset included in the 2018 Study, with 16% and 23% of PC being allocated to this asset on a median-and-mean basis, respectively.

Summary of PC Allocated to Intangible Assets (Financial Institutions) 2018 Study

	Count		PC		% of PC			
	Number	%	Median	Mean	Low	High	Median	Mean
Developed Technology	15	34%	\$663	\$3,246	0%	100%	3%	10%
IPR&D	0	0%	NA	NA	NA	NA	NA	NA
Trademarks and Trade Names	25	57%	336	1,710	0%	69%	2%	7%
Customer-Related Assets	38	86%	98	1,466	0%	78%	16%	23%
Other Identifiable Intangible Assets	21	48%	373	1,277	0%	48%	2%	8%
Goodwill	41	93%	145	1,456	0%	77%	35%	34%

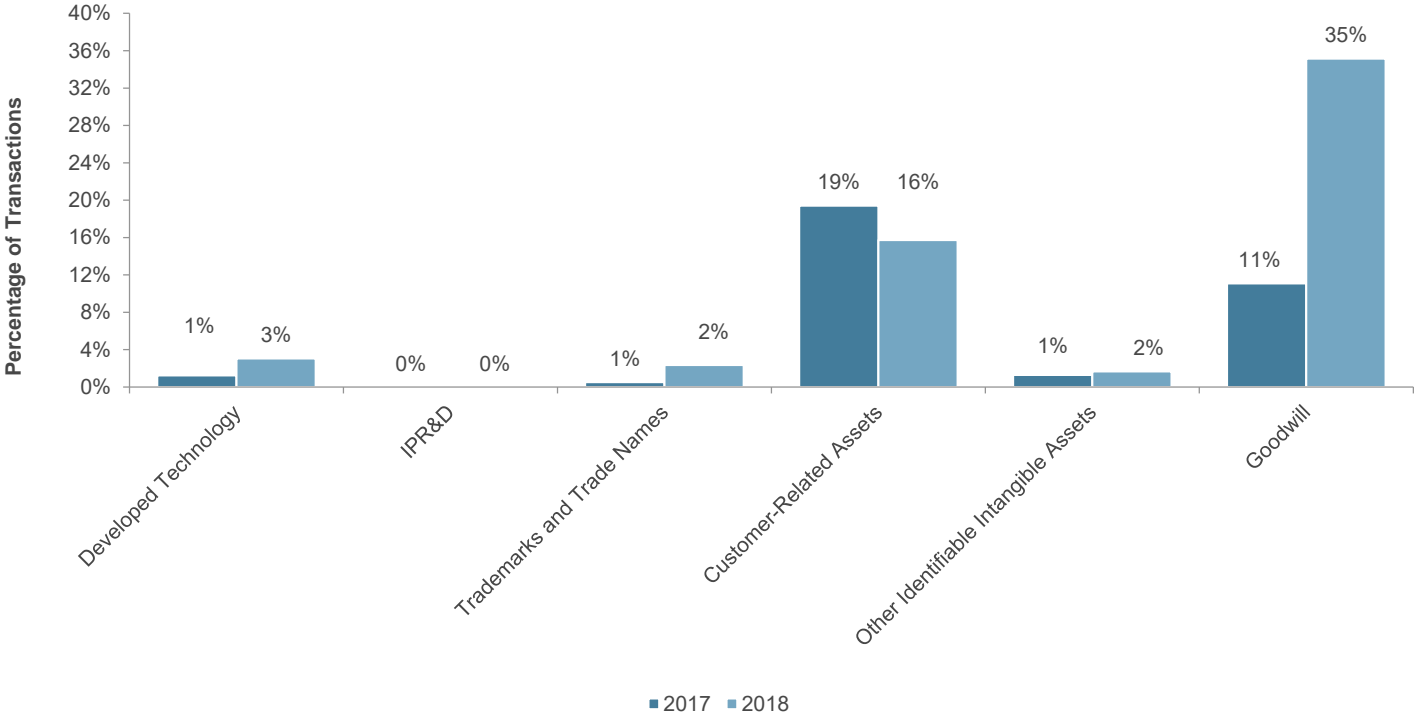
- Notable transaction activity in this industry included the following:

Date	Acquirer	Target	PC	Total % Allocated to Intangible Assets
5/31/2018	Assurant, Inc. (NYSE:AIZ)	The Warranty Group, Inc.	\$11,270	4%
7/2/2018	Centene Corp. (NYSE:CNC)	The New York State Catholic Health Plan, Inc.	\$5,635	16%
7/31/2018	Mr. Cooper Group Inc. (NASDAQCM:COOP)	Nationstar Mortgage Holdings Inc.	\$16,957	1%
9/1/2018	WellCare Health Plans Inc.	Meridian Health Plan of Michigan Inc, Meridianrx LLC, Meridian Health Plan of Illinois, Inc.	\$3,394	18%
11/2/2018	CME Group Inc. (NASDAQGS:CME)	NEX Group Ltd.	\$7,330	45%

Financial Institutions (cont.)

- As illustrated below, goodwill experienced a material change (+/- 5% or more) in the allocation of PC from the 2017 Study to the 2018 Study, with PC allocation increasing from 11% in the 2017 Study to 35% in the 2018 Study.
- In the 2018 Study, developed technology was allocated 3% of PC on a median basis, which is up from 1% in the 2017 Study.

Distribution of PC Allocated to Intangible Assets and Goodwill
2018 Study vs. 2017 Study



Healthcare

- In the 2018 Study, 119 observed transactions allocated PC to intangible assets or goodwill within the healthcare industry, which is up from 62 transactions in the 2017 Study.
- Within the healthcare industry, IPR&D was allocated the highest percentage of PC to any identifiable intangible asset, with 45% and 49% 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 healthcare industry was developed technology, with 26% and 30% of PC allocated to these assets on a median-and-mean basis, respectively.

Summary of PC Allocated to Intangible Assets (Healthcare) 2018 Study

	Count		PC		% of PC			
	Number	%	Median	Mean	Low	High	Median	Mean
Developed Technology	65	56%	\$141	\$3,726	0%	100%	26%	30%
IPR&D	35	30%	141	681	0%	100%	45%	49%
Trademarks and Trade Names	62	53%	106	3,744	0%	100%	2%	9%
Customer-Related Assets	69	59%	111	3,400	1%	47%	18%	19%
Other Identifiable Intangible Assets	30	26%	42	4,122	0%	43%	4%	4%
Goodwill	98	84%	142	2,647	1%	87%	42%	42%

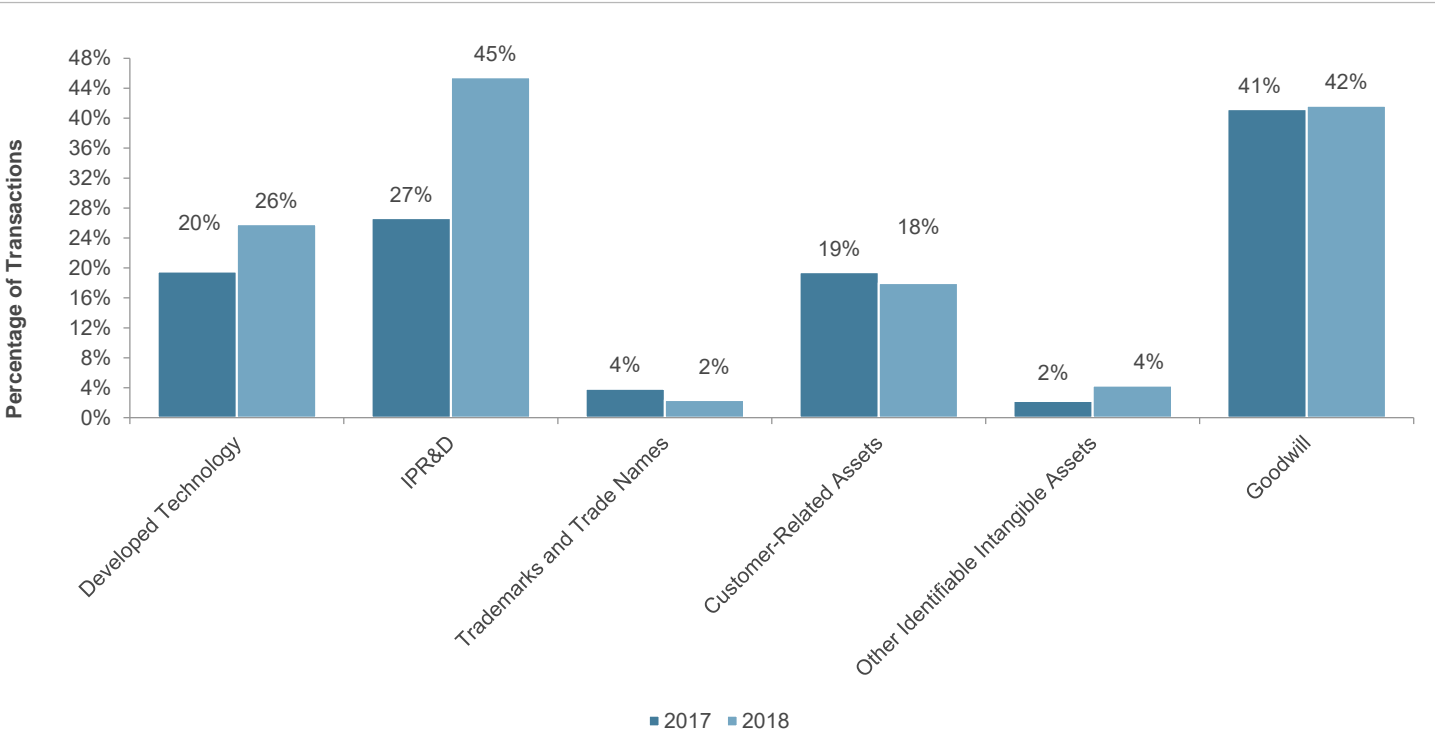
- Notable transaction activity in this industry included the following:

Date	Acquirer	Target	PC	Total % Allocated to Intangible Assets
3/6/2018	Celgene Corp. (NASDAQ:CELG)	Juno Therapeutics, Inc.	\$12,005	69%
3/28/2018	Walgreens Boots Alliance Inc.	Stores and distribution centers/Rite Aid Corp.	\$5,344	38%
11/28/2018	CVS Health Corp. (NYSE:CVS)	Aetna Inc.	\$111,253	21%
11/30/2018	Procter & Gamble Co.	Merck KGaA (Consumer healthcare business, 100%)	\$4,964	43%
12/20/2018	Cigna Corp. (NYSE:CI)	Express Scripts Holding Co.	\$94,775	43%

Healthcare (cont.)

- As illustrated below, PC allocation to developed technology and IPR&D changed by more than 5% from the 2017 Study to the 2018 Study within the healthcare industry.
- In the 2018 Study, IPR&D received the highest allocation of PC among any intangible asset, with 45% of PC being allocated to IPR&D on a median basis, which is up from 27% in the 2017 Study.

Distribution of PC Allocated to Intangible Assets and Goodwill
2018 Study vs. 2017 Study



Industrials

- In the 2018 Study, 100 observed transactions allocated PC to intangible assets or goodwill within the industrials industry, which is up from 54 transactions in the 2017 Study.
- Within the industrials industry, customer-related assets were allocated the highest percentage of PC to any identifiable intangible asset, with 16% and 19% of PC being allocated to this asset on a median-and-mean basis.
- The second highest percentage of PC allocated to any identifiable intangible asset in the industrials industry was developed technology, with 7% and 13% of PC allocated to these assets on a median-and-mean basis, respectively.

Summary of PC Allocated to Intangible Assets (Industrials) 2018 Study

	Count		PC		% of PC			
	Number	%	Median	Mean	Low	High	Median	Mean
Developed Technology	52	54%	\$156	\$3,644	0%	100%	7%	13%
IPR&D	5	5%	29	1,242	0%	80%	2%	27%
Trademarks and Trade Names	69	72%	114	2,787	0%	31%	4%	6%
Customer-Related Assets	87	91%	92	2,265	1%	57%	16%	19%
Other Identifiable Intangible Assets	31	32%	78	2,715	0%	60%	2%	5%
Goodwill	93	97%	88	2,123	5%	79%	39%	37%

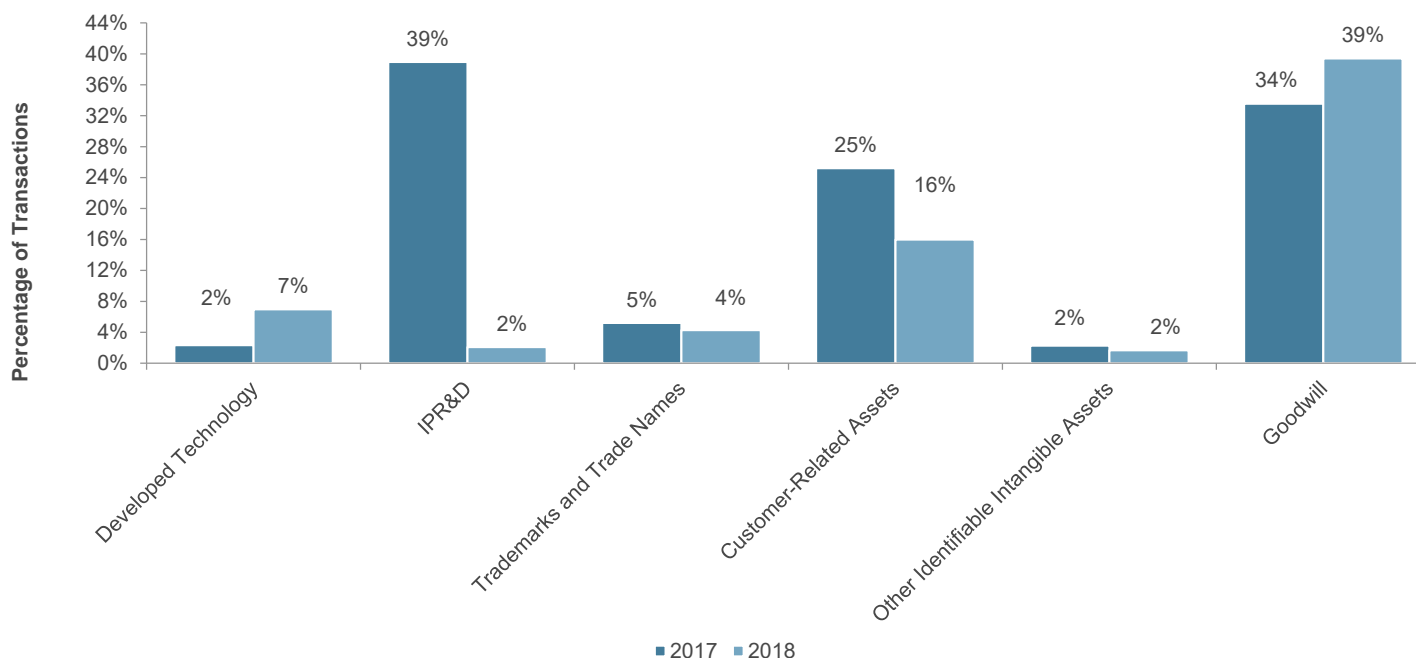
- Notable transaction activity in this industry included the following:

Date	Acquirer	Target	PC	Total % Allocated to Intangible Assets
5/10/2018	McDermott International, Inc. (NYSE:MDR)	Chicago Bridge & Iron Company NV	\$9,374	11%
10/1/2018	Tenneco Inc. (NYSE:TEN)	Federal-Mogul LLC	\$8,209	19%
10/4/2018	International Flavors & Fragrances Inc. (NYSE:IFF)	Frutarom Industries Ltd.	\$8,153	33%
10/11/2018	Comcast Corp. (NASDAQGS:CMCS.A)	Sky Ltd.	\$60,105	34%
10/31/2018	Linde plc (NYSE:LIN)	Linde AG	\$73,643	21%

Industrials (cont.)

- As illustrated below, PC allocations to developed technology, IPR&D, customer-related assets, and goodwill all changed by 5% or more from the 2017 Study to the 2018 Study.
- In the 2018 Study, goodwill received the highest allocation of PC among any intangible asset. As previously mentioned, this is up to 39% from 34% in the 2017 study.
- Customer-related assets received the second highest allocation of PC, with 16% of PC being allocated to this asset on a median basis, which is down from 25% in the 2017 Study.

Distribution of PC Allocated to Intangible Assets and Goodwill
2018 Study vs. 2017 Study



Infrastructure Services and Materials

- In the 2018 Study, 24 observed transactions allocated PC to intangible assets or goodwill within the infrastructure services and materials industry, which is up from 18 transactions in the 2017 Study.
- Within the infrastructure services and materials industry, customer-related assets were allocated the highest percentage of PC to any identifiable intangible asset, with 13% and 17% 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 infrastructure services and materials industry was developed technology, with 3% and 3% of PC allocated to these assets on a median-and-mean basis, respectively.

Summary of PC Allocated to Intangible Assets (ISM) 2018 Study

	Count		PC		% of PC			
	Number	%	Median	Mean	Low	High	Median	Mean
Developed Technology	8	33%	\$301	\$3,904	0%	7%	3%	3%
IPR&D	0	0%	NA	NA	NA	NA	NA	NA
Trademarks and Trade Names	20	83%	367	1,805	0%	19%	2%	4%
Customer-Related Assets	22	92%	342	1,606	2%	56%	13%	17%
Other Identifiable Intangible Assets	10	42%	508	3,343	0%	6%	1%	1%
Goodwill	24	100%	342	1,528	2%	61%	25%	26%

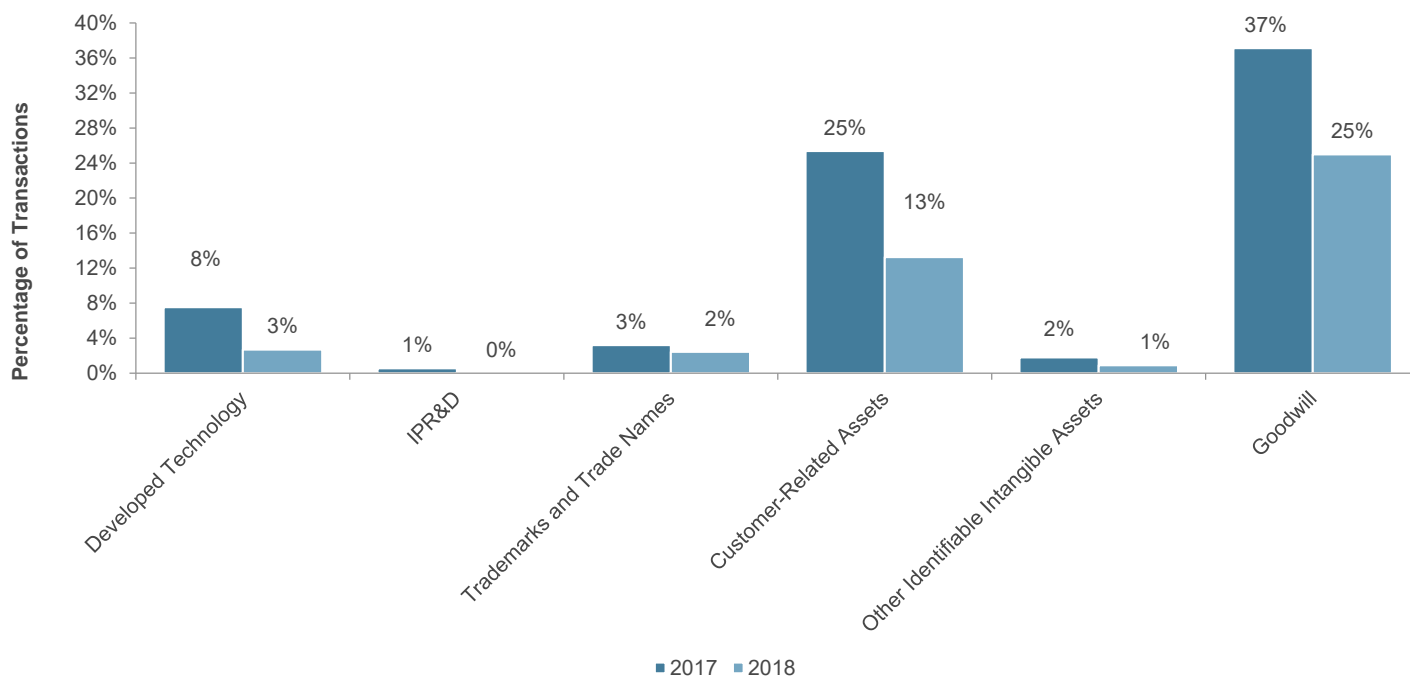
- Notable transaction activity in this industry included the following:

Date	Acquirer	Target	PC	Total % Allocated to Intangible Assets
1/1/2018	Nutrien Ltd. (TSX:NTR)	Agrium Inc.	\$29,306	8%
8/15/2018	WillScot Corp.	Modular Space Corp. (100%)	\$1,292	1%
4/3/2018	James Hardie Industries plc (ASX:JHX)	XI (DL) Holdings GmbH	\$802	23%
6/4/2018	GMS Inc.	WSB Titan Inc.	\$677	42%
3/9/2018	Masco Corp.	Clare Sky Inc.	\$608	39%

Infrastructure Services and Materials (cont.)

- As illustrated below, PC allocation to developed technology, customer-related assets, and goodwill were the only assets to change by more than 5% from the 2017 Study to the 2018 Study within the infrastructure services and materials industry.
- In the 2018 Study, goodwill received the highest allocation of PC among any intangible asset within the infrastructure services and materials industry, with 25% of PC being allocated to goodwill, which is down from 37% in the 2017 Study.

Distribution of PC Allocated to Intangible Assets and Goodwill
2018 Study vs. 2017 Study



Technology

- In the 2018 Study, 196 observed transactions allocated PC to intangible assets or goodwill within the technology industry, which is up from 117 transactions in the 2017 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 20% 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 15% and 19% of PC allocated to these assets on a median-and-mean basis, respectively.

Summary of PC Allocated to Intangible Assets (Technology) 2018 Study

	Count		PC		% of PC			
	Number	%	Median	Mean	Low	High	Median	Mean
Developed Technology	159	81%	\$64	\$548	0%	100%	16%	20%
IPR&D	12	6%	362	2,986	1%	81%	5%	16%
Trademarks and Trade Names	118	60%	100	1,885	0%	41%	3%	4%
Customer-Related Assets	156	80%	82	685	0%	98%	15%	19%
Other Identifiable Intangible Assets	54	28%	75	3,360	0%	45%	2%	6%
Goodwill	191	97%	60	1,256	4%	96%	51%	51%

- Notable transaction activity in this industry included the following:

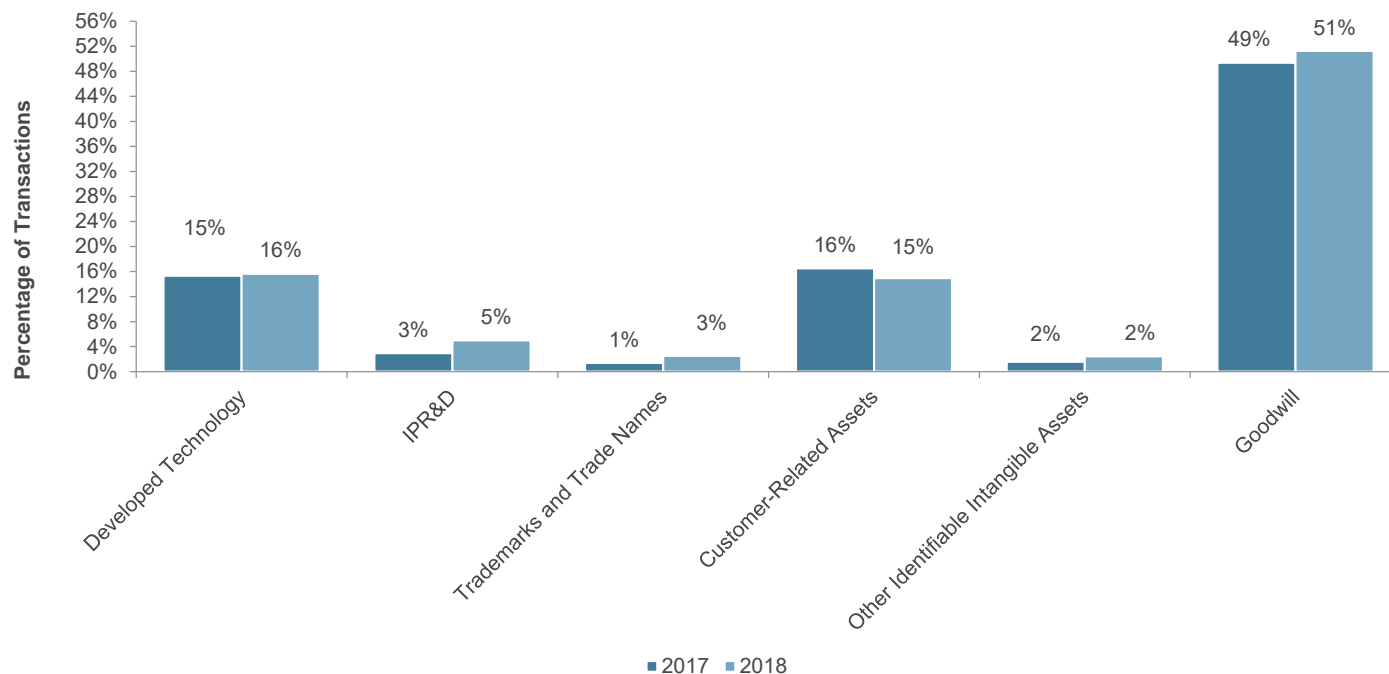
\$ in millions

Date	Acquirer	Target	PC	Total % Allocated to Intangible Assets
3/6/2018	Discovery, Inc. (NASDAQGS:DISC.A)	Scripps Networks Interactive, Inc.	\$18,721	49%
4/16/2018	SS&C Technologies Holdings, Inc. (NASDAQGS:SSNC)	DST Systems, Inc.	\$7,040	37%
6/14/2018	AT&T Inc. (NYSE:T)	Warner Media, LLC	\$129,458	44%
7/6/2018	Marvell Technology Group Ltd. (NASDAQGS:MRVL)	Cavium, Inc.	\$7,094	39%
11/5/2018	Broadcom Inc. (NASDAQGS:AVGO)	CA, Inc.	\$23,708	51%

Technology (cont.)

- As illustrated below, there have not been any material changes (+/- 5% or more) in the allocation percentage to any particular intangible asset from the 2017 Study to the 2018 Study.
- In the 2018 Study, goodwill received the highest allocation of PC among any intangible asset within the technology industry, with 51% of PC being allocated to this asset, which is up from 49% in the 2017 Study.
- Developed technology received the second highest allocation of PC among intangible assets, with 16% of PC being allocated to this asset on a median basis, which is up from 15% in the 2017 Study.

Distribution of PC Allocated to Intangible Assets and Goodwill
2018 Study vs. 2017 Study



Telecom

- In the 2018 Study, 25 observed transactions allocated PC to intangible assets or goodwill within the telecom industry, which is up from six transactions in the 2017 Study.
- Within the telecom industry, customer-related assets were allocated the highest percentage of PC to any identifiable intangible asset, with 18% and 20% 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 developed technology assets, with 11% and 17% of PC allocated to these assets on a median-and-mean basis.

Summary of PC Allocated to Intangible Assets (Telecom) 2018 Study

	Count		PC		% of PC			
	Number	%	Median	Mean	Low	High	Median	Mean
Developed Technology	15	60%	\$258	\$1,182	1%	87%	11%	17%
IPR&D	3	12%	919	1,111	2%	6%	4%	4%
Trademarks and Trade Names	16	64%	186	785	0%	24%	3%	5%
Customer-Related Assets	23	92%	137	967	0%	24%	18%	20%
Other Identifiable Intangible Assets	11	44%	258	1,554	0%	11%	2%	4%
Goodwill	24	96%	186	941	1%	77%	34%	36%

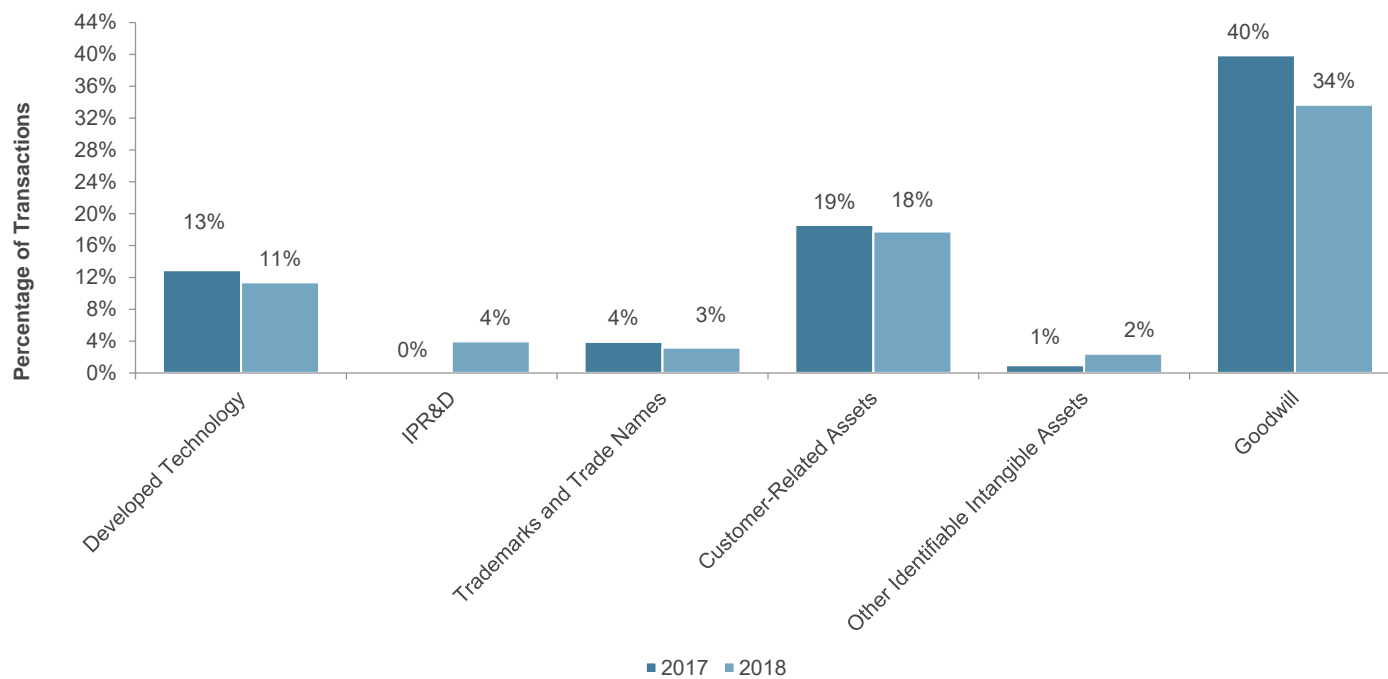
- Notable transaction activity in this industry included the following:
\$ in millions

Date	Acquirer	Target	PC	Total % Allocated to Intangible Assets
5/31/2018	GTT Communications Inc	Interoute Communications Ltd.	\$2,930	6%
10/25/2018	Microsoft Corp. (NASDAQGS:MSFT)	GitHub, Inc.	\$7,138	18%
11/5/2018	Tele2 AB (publ) (OM:TEL2 B)	Com Hem Holding AB (publ)	\$4,827	35%
11/27/2018	AMETEK, Inc. (NYSE:AME)	Spectro Scientific, Inc.	\$1,207	43%
12/10/2018	Lumentum Holdings Inc. (NASDAQGS:LITE)	Oclaro, Inc.	\$1,599	28%

Telecom (cont.)

- As illustrated below, there have not been any material changes (+/- 5% or more) in the allocation percentage to any particular intangible asset from the 2017 Study to the 2018 Study.
- In the 2018 Study, goodwill received the highest allocation of PC among any intangible asset within the telecom industry, with 34% of PC being allocated to this asset, which is down from 40% in the 2017 Study.

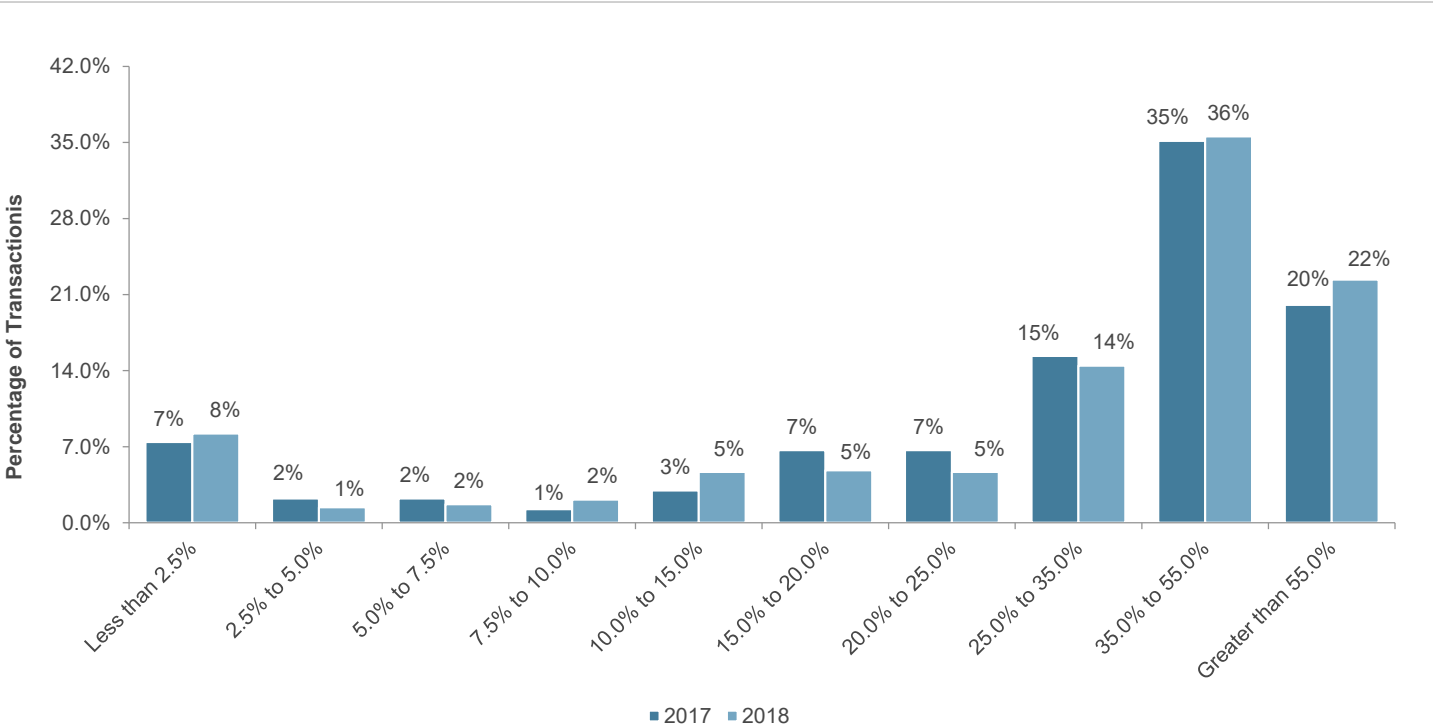
Distribution of PC Allocated to Intangible Assets and Goodwill
2018 Study vs. 2017 Study



Goodwill

- In the 2018 Study, 665 transactions (93%) allocated PC to goodwill. As in previous years, transactions with negative goodwill (i.e., bargain purchases) were excluded from the study.
- The median and mean allocations of PC to goodwill were 41% in 2018.
- As illustrated below, 511 deals (72%) allocated 25% or more of PC to goodwill.

Distribution of PC Allocated to Goodwill
2018 Study vs. 2017 study



Disclaimers

Disclaimers

© 2020 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 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.

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); HL Finance, LLC (syndicated leveraged finance platform); and Houlihan Lokey Real Estate Group, Inc. (real estate advisory services); (ii) Europe: Houlihan Lokey EMEA, LLP, and Houlihan Lokey (Corporate Finance) Limited, authorized and regulated by the U.K. Financial Conduct Authority; Houlihan Lokey S.p.A.; Houlihan Lokey GmbH; Houlihan Lokey (Netherlands) B.V.; Houlihan Lokey (España), S.A.; and Houlihan Lokey (Corporate Finance), S.A.; (iii) the United Arab Emirates, Dubai International Financial Centre (Dubai): Houlihan Lokey (MEA Financial Advisory) Limited, regulated by the Dubai Financial Services Authority for the provision of advising on financial products, arranging deals in investments, and arranging credit and advising on credit to professional clients only; (iv) Singapore: Houlihan Lokey (Singapore) Private Limited, an “exempt corporate finance adviser” able to provide exempt corporate finance advisory services to accredited investors only; (v) 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; (vi) China: Houlihan Lokey Howard & Zukin Investment Consulting (Beijing) Co., Limited (financial advisory services); (vii) Japan: Houlihan Lokey K.K. (financial advisory services); and (viii) 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 only. In the European Economic Area (EEA), Dubai, Singapore, Hong Kong, and Australia, this communication is directed to intended recipients, including actual or potential professional clients (EEA and Dubai), accredited investors (Singapore), professional investors (Hong Kong), and wholesale clients (Australia), respectively. Other persons, such as retail clients, are NOT the intended recipients of our communications or services and should not act upon this communication.

CORPORATE FINANCE
FINANCIAL RESTRUCTURING
FINANCIAL AND VALUATION ADVISORY

[HL.com](https://www.hl.com)