



2019 and 2020 Purchase Price Allocation Study

DECEMBER 2021

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About Houlihan Lokey



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

Corporate Finance

2020 M&A Advisory Rankings All U.S. Transactions

	Advisor	Deals
1	Houlihan Lokey	210
2	Goldman Sachs & Co	172
3	JP Morgan	132
4	Evercore Partners	126
5	Morgan Stanley	123

Source: Refinitiv (formerly known as Thomson Reuters)

No. 1 U.S. M&A Advisor

Top 5 Global M&A Advisor

Leading Capital Markets Advisor

Financial Restructuring

2020 Global Distressed Debt & Bankruptcy Restructuring Rankings

	Advisor	Deals
1	Houlihan Lokey	106
2	PJT Partners Inc	63
3	Lazard	50
4	Rothschild & Co	46
5	Moelis & Co	39

Source: Refinitiv (formerly known as Thomson Reuters)

No. 1 Global Restructuring Advisor

1,400+ Transactions Completed
Valued at More Than \$3.0 Trillion
Collectively

Financial and Valuation Advisory

2001 to 2020 Global M&A Fairness Advisory Rankings

	Advisor	Deals
1	Houlihan Lokey	956
2	JP Morgan	876
3	Duff & Phelps	802
4	Morgan Stanley	599
5	BofA Securities Inc	542

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

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

Europe and Middle East

Amsterdam
Birmingham
Dubai
Frankfurt
Lausanne
London
Madrid
Manchester
Milan
Munich
Paris
Stockholm
Tel Aviv
Zurich

Asia-Pacific

Beijing
Fukuoka
Ho Chi Minh City
Hong Kong
Kyoto
Mumbai
Nagoya
New Delhi
Osaka
Shanghai
Singapore
Sydney
Tokyo

No. 1 Position Across Product Categories



HOULIHAN LOKEY

Corporate Finance

Mergers and Acquisitions

- Buyside and Sellside 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 2020

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 and Other Capital Adequacy 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 2019 and 2020 Purchase Price Allocation Study (2019 and 2020 Study). Houlihan Lokey completed its 2019 and 2020 Study by reviewing public filings for 1,253 completed transactions in 2019 and 1,033 completed transactions in 2020 and summarizing the results for certain transactions by transaction size and industry. The 2019 and 2020 Study also provides statistics, other annual data, and a comparison to certain 2018 results (2018 Study). Key observations from the 2019 and 2020 Study include the following:

- According to the 2019 and 2020 Study, technology was the most active sector for M&A activities, although the energy sector had the largest median transaction size in 2019 and the infrastructure services and materials sector had the largest median transaction size in 2020.
- Identifiable intangible assets and goodwill as percentages of purchase consideration remained relatively stable year over year. The aerospace, defense, and government sector had the highest percentage of goodwill in 2019 and the technology sector had the highest percentage of goodwill in 2020.
- Contingent consideration (CC) remained an important part of many transactions. Approximately 25% of the transactions in 2019 and in 2020 had CC in the purchase consideration, which is up from 19% in the 2018 Study.
- The main identifiable intangible assets across all industries are generally technology- and customer-related.

I hope you will find the 2019 and 2020 Study helpful. Thank you again for reading this. We are excited to hear your comments and feedback.

Best,



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.



Oscar Aarts
Managing Director
212.497.7869
OAarts@HL.com



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
3060 Peachtree Rd. NW
Suite 1500
Atlanta, GA 30305
404.495.7000

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
333 Bush St.
31st Floor
San Francisco, CA 94104
415.974.5888

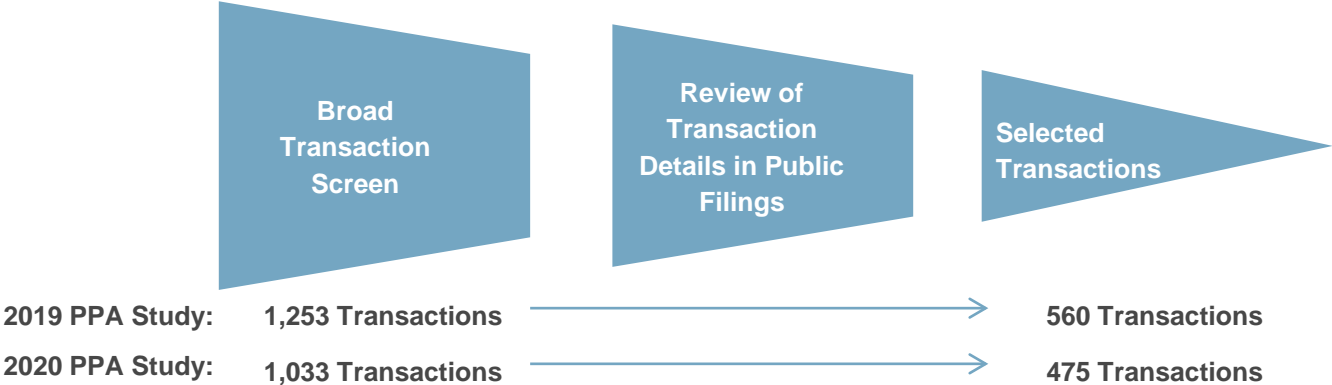
Screening Criteria and Methodology

The universe of transactions initially considered in the 2019 and 2020 Study was obtained using the following search criteria:

- Transactions available in S&P Capital IQ.
- Transaction closed in 2019 for the 2019 Study and 2020 for the 2020 Study.
- Acquirer was an SEC registrant filing 10-K, 10-Q, 20-F, or 40-F in 2019 and 2020 (S&P Capital IQ).
- We excluded transactions completed by investment firms.
- We excluded transactions with multiple acquirers.
- Transaction value was disclosed.

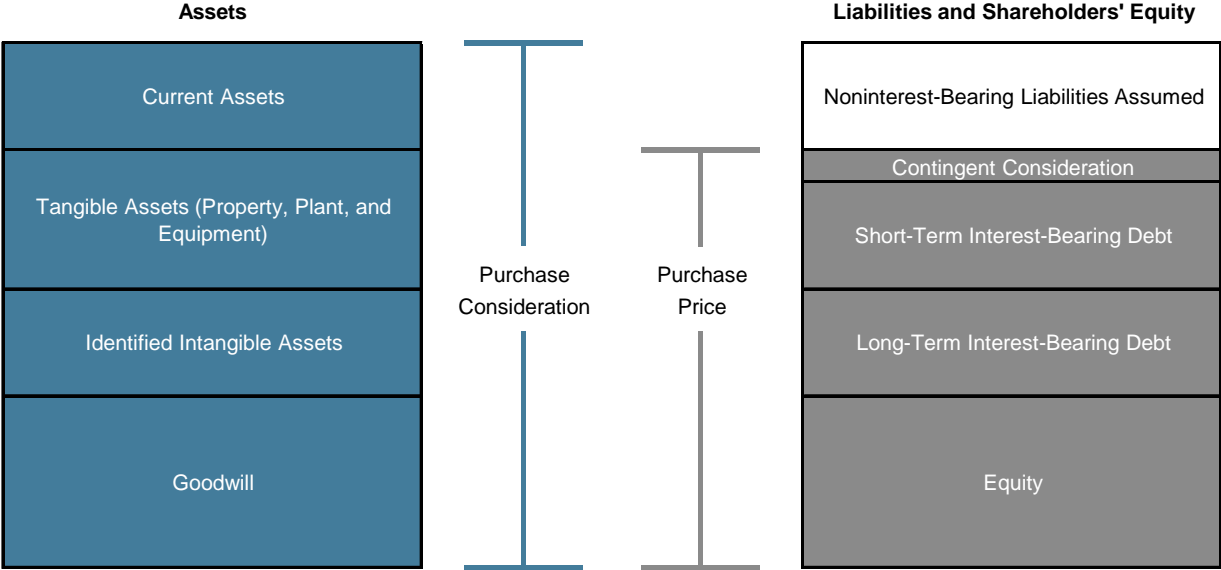
The initial sample consisted of 1,253 transactions in 2019 and 1,033 transactions in 2020. We reviewed public filings for each company in the initial sample with the objective of finding detailed disclosures regarding purchase consideration (PC), identifiable intangible asset fair values, and goodwill. In 2019, sufficient disclosures were provided for 560 transactions, which represented approximately 45% of the initial sample; in 2020, sufficient disclosures were provided for 475 transactions, which represented approximately 46% of the initial sample.

560 transactions formed the basis of the 2019 Study and 475 transactions formed the basis of the 2020 Study.



Screening Criteria and Methodology (cont.)

The primary objective of the 2019 and 2020 Study was to review the amount of PC allocated to tangible assets, identifiable intangible assets, and goodwill. In addition, the 2020 Study marks the seventh 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 2019 and 2020 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 2019 and 2020 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 separately in the 2019 and 2020 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 2019 and 2020 Study

- The median allocation of PC to intangible assets in 2019 and 2020 was 34% and 34%, respectively.
- The median allocation of PC to goodwill in 2019 and 2020 was 47% and 47%, respectively.
- Healthcare was the only industry with intangible assets and goodwill percentage above the mean and median in 2019 and 2020.

Summary Allocation Percentages by Industry 2020 vs. 2019

	Count			Median Results								
				Purchase Consideration			Intangible Assets, % of PC			Goodwill, % of PC		
	2020	2019	% Chg.	2020	2019	% Chg.	2020	2019	BPS Chg.	2020	2019	BPS Chg.
All Industries	475	560	-15%	77	90	-14%	34%	34%	0%	47%	47%	0%
Aerospace, Defense, and Government	11	15	-27%	130	225	-42%	31%	29%	2%	53%	56%	-3%
Consumer, Food, and Retail	66	81	-19%	82	137	-40%	30%	38%	-8%	42%	32%	11%
Energy	4	9	-56%	98	1,958	-95%	17%	18%	-1%	46%	20%	26%
Financial Institutions	25	30	-17%	180	153	17%	18%	23%	-5%	46%	40%	6%
Healthcare	115	102	13%	73	76	-4%	44%	43%	0%	46%	47%	-1%
Industrials	56	64	-13%	86	105	-19%	35%	32%	3%	41%	40%	0%
Infrastructure Services and Materials	13	23	-43%	353	170	107%	33%	32%	1%	32%	33%	0%
Technology	157	206	-24%	47	63	-26%	32%	34%	-1%	58%	53%	5%
Telecom	28	30	-7%	72	39	83%	33%	28%	5%	43%	55%	-12%

Notes: 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 2019 and 2020.

Transaction Volume

- U.S. and global financial markets were significantly disrupted in the first quarter of 2020 by the spread of COVID-19 and measures that were taken by governments, companies, and individuals to contain the spread of the virus and associated illnesses. The World Health Organization (WHO) declared a Public Health Emergency of International Concern on January 30, 2020, and recognized the COVID-19 outbreak as a pandemic on March 11, 2020.⁽¹⁾ Rising COVID-19 cases and lockdowns in 2020 created uncertainty in the future economic environment.⁽²⁾
- Final results indicate that the U.S. economic growth peaked in February 2020, and as of June 8, 2020, the U.S. officially entered a recession, thus ending the longest economic expansion in U.S. history. The year 2020 ended on a negative note, as real gross domestic product (GDP) contracted 3.5% from 2019 levels. As the U.S. continues to recover from the pandemic, real GDP (a measure of GDP that adjusts for inflation) is expected to grow by 5.7% in 2021 and 4.0% in 2022.⁽²⁾
- Our initial screening generated a population of 1,253 transactions in 2019 and 1,033 transactions in 2020. However, certain 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 percentage of transactions with sufficient disclosures increased to 46% in 2020 from 45% in 2019.

⁽¹⁾ "WHO Director-General's opening remarks at the media briefing on COVID-19—11 March 2020," World Health Organization, dated March 11, 2020.

⁽²⁾ Consensus Economics, *Survey of Economic Forecasts*, December 7, 2020.

Industry Results

- All nine industries but one experienced year-over-year declines in the number of transactions available for the 2020 Study, relative to the 2019 Study.
 - Healthcare had the only increase in the number of transactions, from 102 transactions in the 2019 Study to 115 transactions in the 2020 Study.
- When measured across all industries, the median percentage of PC allocated to identifiable intangibles was flat at 34% for 2020 and 2019. Eight of the nine industries displayed a small change (5% or less) in the median amount of PC allocated to identifiable intangible assets compared with 2019.
 - Telecom recorded the largest percentage increase of 5% for PC allocated to identifiable intangible assets.
 - Consumer, food, and retail recorded the largest percentage decrease out of all industries at 8% for PC allocated to identifiable intangible assets.
- The median percentage of PC allocated to goodwill was flat at 47% for 2020 and 2019.
 - Energy had the biggest change, increasing from 20% of PC in 2019 to 46% of PC in 2020.

Transaction Size

- Approximately 72% of the transactions in the 2020 Study had PC below \$250 million, which is slightly higher when compared with the 69% of 2019.
- In 2019 and 2020, transactions generally recorded lower allocations to intangible assets and higher allocations to goodwill.
 - In 2020, for transactions with PC below \$250 million, intangible assets and goodwill averaged 35% and 46% of PC, respectively. In 2019, the corresponding percentages of allocation to intangible assets and goodwill were each at 38% and 44%.
 - For transactions with PC above \$250 million in 2020, intangible assets and goodwill averaged 36% and 41% of PC, respectively. In 2019, the corresponding percentages of allocation to intangible assets and goodwill were 34% and 40%, respectively.
- From 2019 to 2020, the average transaction size increased from \$1,369 million to \$1,454 million, and the median transaction size decreased from \$90 million to \$77 million.

Transaction Size (cont.)

Summary Allocation Percentages by Size 2019 vs. 2020

	Count			Median Goodwill, % of PC		
	2020	2019	% Chg.	2020	2019	% Chg.
All Transactions	475	560	-15%	47%	47%	0%
PC > \$5,000	23	25	-8%	20%	40%	-50%
\$1,000 < PC < \$5,000	30	49	-39%	43%	41%	4%
\$500 < PC < \$1,000	30	38	-21%	51%	39%	30%
\$250 < PC < \$500	51	59	-14%	49%	46%	6%
\$100 < PC < \$250	71	97	-27%	49%	51%	-4%
\$50 < PC < \$100	62	72	-14%	47%	42%	12%
PC < \$50	208	220	-5%	43%	46%	-5%

Indefinite-Lived Intangible Assets

- Indefinite-lived intangible assets accounted for approximately 21% of the total intangible asset value in 2020, as compared with 3% in 2019.
- Trademarks and trade names were the most common intangible assets to be considered indefinite-lived.
 - In 2019 and 2020, 58% of the transactions in the sample ascribed PC to trademarks and trade names.
 - Acquirers considered 15% of the purchased trademarks and trade names to be indefinite-lived assets in the 2019 and 2020 Study.
- 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

Trademarks and Trade Names	2020		2019	
	Count	% of Total	Count	% of Total
All Indefinite-Lived	42	15%	48	15%
All Definite-Lived	234	85%	275	85%
Mix of Definite- and Indefinite-Lived	0	0%	0	0%
Total	276	100%	323	100%

Notes: 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 2019 and 2020 Study.

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 noncompete agreements, licenses, permits, and other contracts or agreements, among others.
- IPR&D and trademarks and trade names recorded increases in the frequency of identification from 2019 to 2020.
- With respect to the amount of PC allocated to each of these categories from 2019 to 2020, IPR&D increased while other intangible assets stayed flat.

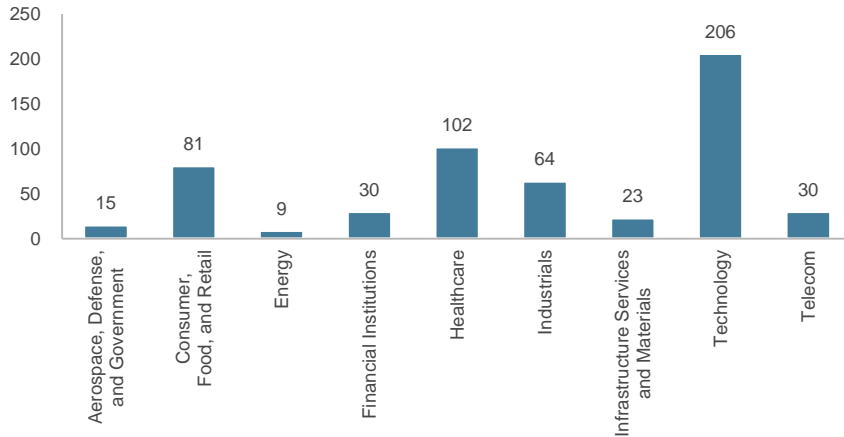
Frequently Identified Intangible Assets 2018–2020

	Count, % of Sample			Median % of PC		
	2020	2019	2018	2020	2019	2018
Developed Technology	59%	63%	54%	14%	14%	12%
<i>Change</i>	-4%	9%	3%	0%	2%	1%
IPR&D	11%	9%	9%	27%	13%	15%
<i>Change</i>	2%	0%	1%	14%	-2%	11%
Customer-Related Assets	76%	77%	77%	15%	15%	16%
<i>Change</i>	-1%	0%	-2%	0%	-1%	-3%
Trademarks and Trade Names	58%	58%	63%	3%	3%	3%
<i>Change</i>	0%	-5%	-2%	0%	0%	0%

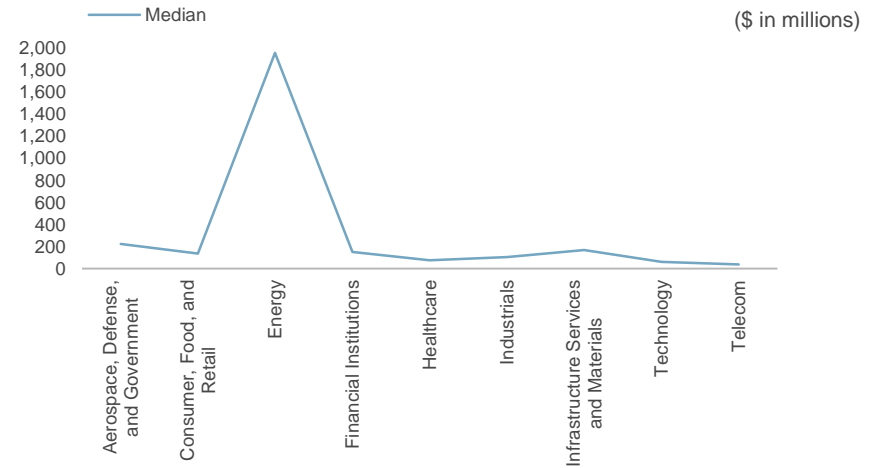
2019 Observations and Results

Industry Results (2019 Study)

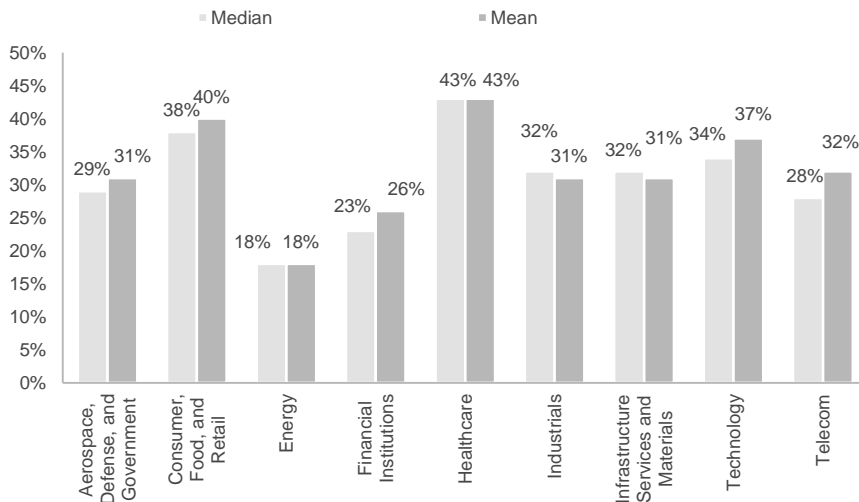
Transaction Count



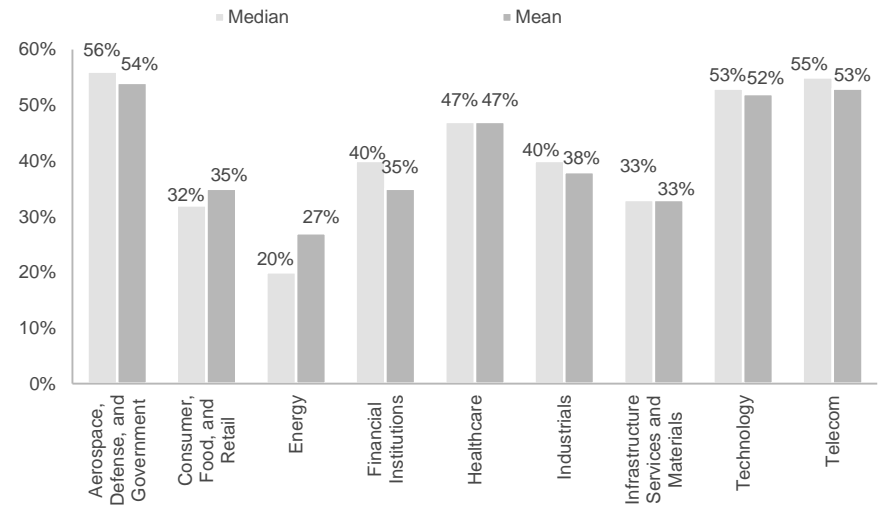
Purchase Consideration



Intangible Assets as Percentage of Purchase Consideration

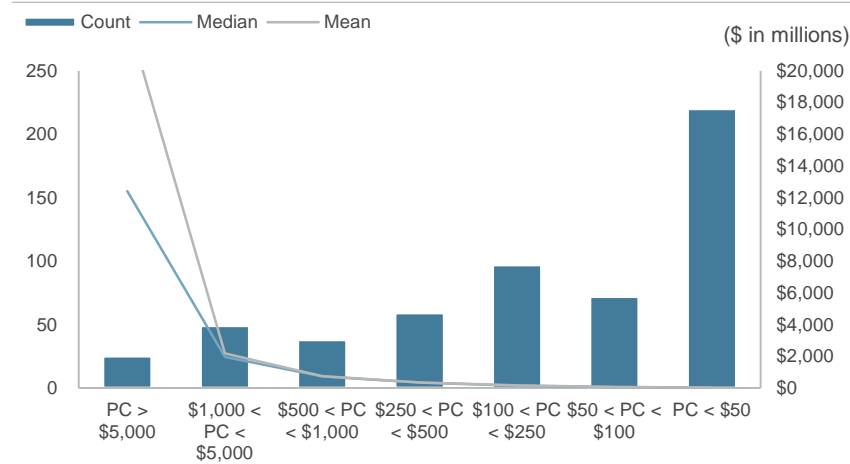


Goodwill as Percentage of Purchase Consideration

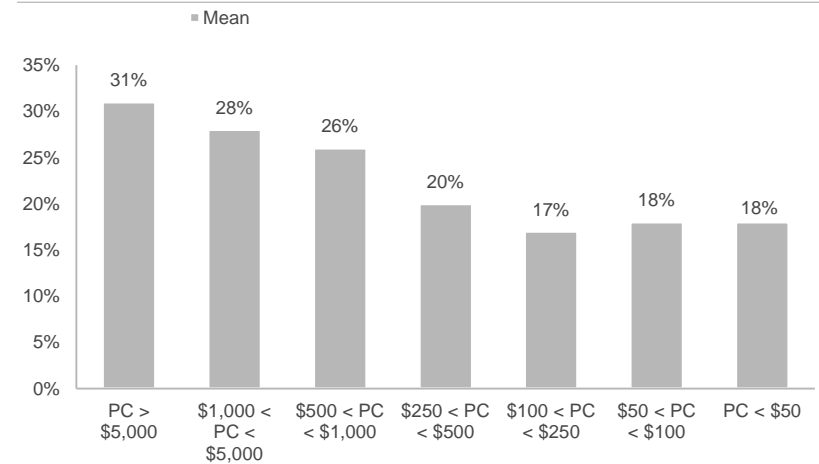


Transaction Size (2019 Study)

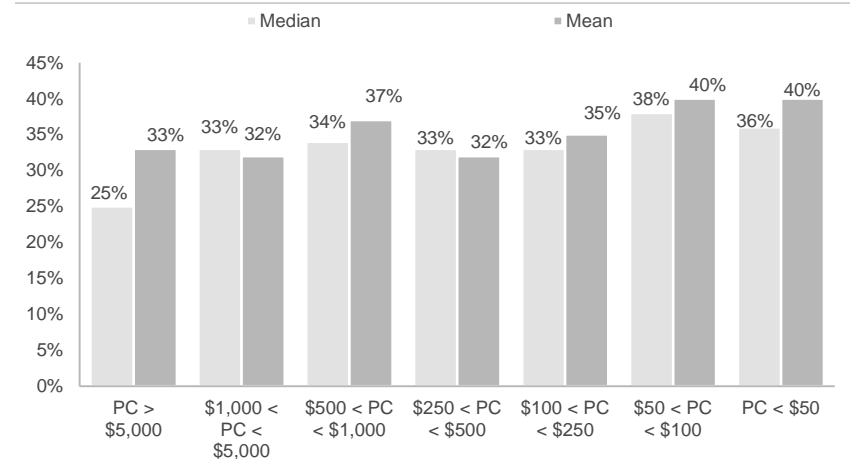
Transaction Count



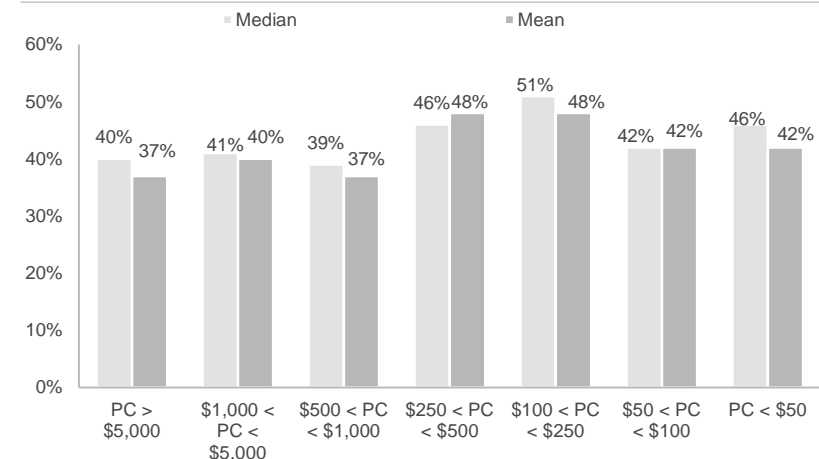
Tangible Assets as Percentage of Purchase Consideration



Intangible Assets as Percentage of Purchase Consideration



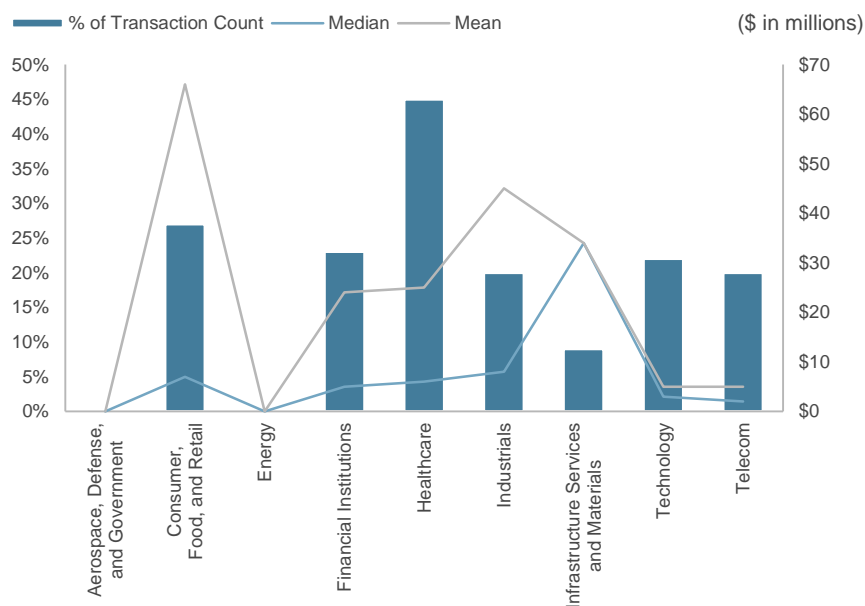
Goodwill as Percentage of Purchase Consideration



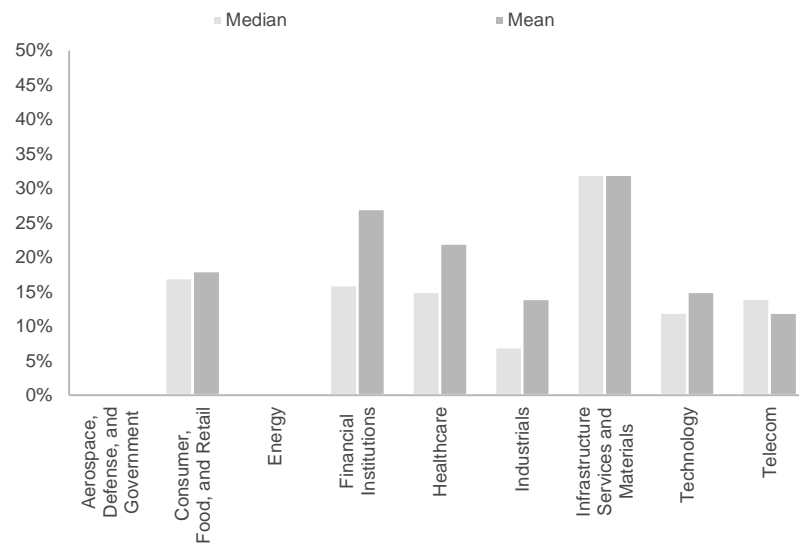
Contingent Consideration (2019 Study)

- 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 25% of the transactions in the 2019 Study had CC in the purchase price, up from 19% of transactions in the 2018 Study.
- CC represented 13% and 18% of PC when measured on the median and mean, respectively. CC represented 10% and 15% of PC when measured on the median and mean, respectively, in the 2018 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.

Indefinite-Lived Intangible Assets (2019 Study)

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

Top 10 Transactions by Dollar Allocation to Indefinite-Lived Assets 2019

\$ 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
3/1/2019	Linde plc (NYSE:LIN)	Linde AG	\$74,088	\$1,868	3%	22%	Trademark and Trade Name
9/19/2019	Colgate-Palmolive Co. (NYSE:CL)	Laboratoires FILORGA Cosmétiques SAS	\$2,145	\$774	36%	49%	Trademark and Trade Name
12/18/2019	The Estée Lauder Companies Inc. (NYSE:EL)	HAVE & BE Co., Ltd.	\$2,349	\$722	31%	71%	Trademark and Trade Name
1/28/2019	Energizer Holdings, Inc. (NYSE:ENR)	Global Auto Care Business of Spectrum Brands Holdings, Inc.	\$1,463	\$702	48%	66%	Trademark and Trade Name
1/2/2019	Energizer Holdings, Inc. (NYSE:ENR)	Global Battery and Lighting Business of Spectrum Brands Holdings, Inc.	\$2,441	\$587	24%	33%	Trademark and Trade Name
10/2/2019	The Cheesecake Factory Inc. (NASDAQGS:CAKE)	Fox Restaurant Concepts, LLC	\$565	\$339	60%	60%	Trademark and Trade Name
8/1/2019	Quaker Chemical Corp. (NYSE:KWR)	Houghton International Inc.	\$2,081	\$242	12%	49%	Trademark and Trade Name
4/1/2019	MGM Resorts International (NYSE:MGM)	All Operating Assets of Hard Rock Rocksino Northfield Park	\$1,109	\$228	21%	23%	Licenses
5/31/2019	PVH Corp. (NYSE:PVH)	Gazal Corporation Ltd.	\$222	\$205	92%	100%	Licenses
5/23/2019	Penn National Gaming, Inc. (NASDAQGS:PENN)	Greektown Holdings, LLC	\$856	\$191	22%	23%	Licenses

Aerospace, Defense, and Government (2019 Study)

- In the 2019 Study, 15 observed transactions allocated PC to intangible assets or goodwill within the aerospace, defense, and government (ADG) industry, down from 17 transactions in the 2018 Study.
- Within the ADG industry, customer-related assets were allocated the highest percentage of PC to any identifiable intangible asset, with 21% and 22% 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 9% and 11% of PC allocated to these assets on a median-and-mean basis, respectively.

Summary of PC Allocated to Intangible Assets (ADG) 2019 Study

	Count		PC		% of PC			
	Number	%	Median	Mean	Low	High	Median	Mean
Developed Technology	12	80%	\$265	\$3,046	0%	39%	9%	11%
IPR&D	3	20%	225	9,930	0%	2%	1%	1%
Trademarks and Trade Names	8	53%	265	4,135	0%	15%	2%	4%
Customer-Related Assets	14	93%	245	2,632	1%	50%	21%	22%
Other Identifiable Intangible Assets	2	13%	1,263	1,263	1%	1%	1%	1%
Goodwill	15	100%	225	2,458	20%	77%	56%	54%

- Notable transaction activity in this industry included the following:

\$ in millions

Date	Acquirer	Target	PC	Total % Allocated to Intangible Assets
6/29/2019	L3Harris Technologies, Inc. (NYSE:LHX)	L3 Technologies, Inc.	\$29,349	29%
1/14/2019	Science Applications International Corp. (NYSE:SAIC)	Engility Holdings, Inc.	\$2,484	26%
10/7/2019	VMware, Inc. (NYSE:VMW)	Carbon Black, Inc.	\$2,301	21%
6/11/2019	Jacobs Engineering Group Inc. (NYSE:J)	The KeyW Holding Corp.	\$986	18%
12/20/2019	NV5 Global, Inc. (NASDAQCM:NVEE)	Quantum Spatial, Inc.	\$381	43%

Consumer, Food, and Retail (2019 Study)

- In the 2019 Study, 81 observed transactions allocated PC to intangible assets or goodwill within the CFR industry, down from 166 transactions in the 2018 Study.
- 11% and 20% of PC were allocated to trademarks and trade names on a median-and-mean basis, respectively.
- 14% and 20% of PC were allocated to customer-related assets on a median-and-mean basis, respectively.

Summary of PC Allocated to Intangible Assets (CFR) 2019 Study

	Count		PC		% of PC			
	Number	%	Median	Mean	Low	High	Median	Mean
Developed Technology	21	26%	\$248	\$756	0%	94%	9%	18%
IPR&D	2	2%	428	428	5%	6%	5%	5%
Trademarks and Trade Names	65	80%	146	518	0%	93%	11%	20%
Customer-Related Assets	61	75%	143	465	0%	85%	14%	20%
Other Identifiable Intangible Assets	37	46%	136	324	0%	92%	4%	9%
Goodwill	72	89%	144	493	0%	80%	32%	35%

- Notable transaction activity in this industry included the following:

\$ in millions

Date	Acquirer	Target	PC	Total % Allocated to Intangible Assets
1/3/2019	The Coca-Cola Company (NYSE:KO)	Costa Ltd.	\$4,900	49%
2/1/2019	Thor Industries, Inc. (NYSE:THO)	Erwin Hymer Group SE	\$3,333	20%
1/2/2019	Energizer Holdings, Inc. (NYSE:ENR)	Global Battery and Lighting Business of Spectrum Brands Holdings, Inc.	\$2,441	33%
12/18/2019	The Estée Lauder Companies Inc. (NYSE:EL)	HAVE & BE Co., Ltd.	\$2,349	71%
12/30/2019	Performance Food Group Co. (NYSE:PFGC)	Reinhardt FoodService L.L.C./Associated Real Estate Companies	\$1,989	41%

Energy (2019 Study)

- In the 2019 Study, nine observed transactions allocated PC to intangible assets or goodwill within the energy industry, which is down from 24 transactions in the 2018 Study.
- Within the energy industry, customer-related assets were allocated the highest percentage of PC to any identifiable intangible asset, with 17% and 16% of PC being allocated to this asset on a median-and-mean basis, respectively.

Summary of PC Allocated to Intangible Assets (Energy) 2019 Study

	Count		PC		% of PC			
	Number	%	Median	Mean	Low	High	Median	Mean
Developed Technology	1	11%	\$692	\$692	4%	4%	4%	4%
Trademarks and Trade Names	3	33%	692	3,852	1%	3%	3%	2%
Customer-Related Assets	9	100%	1,958	4,974	1%	37%	17%	16%
Other Identifiable Intangible Assets	4	44%	5,731	7,052	0%	11%	0%	3%
Goodwill	9	100%	1,958	4,974	10%	49%	20%	27%

- Notable transaction activity in this industry included the following:

\$ in millions

Date	Acquirer	Target	PC	Total % Allocated to Intangible Assets
7/30/2019	MPLX LP (NYSE:MPLX)	Andeavor Logistics LP	\$16,736	6%
2/1/2019	CenterPoint Energy, Inc. (NYSE:CNP)	Vectren Corp.	\$10,855	3%
3/12/2019	Antero Midstream Corp. (NYSE:AM)	Antero Midstream Partners LP	\$7,229	22%
12/16/2019	Pembina Pipeline Corp. (TSX:PPL)	Kinder Morgan Canada Ltd. (TSX:KML)	\$5,148	24%
3/18/2019	The Williams Companies, Inc. (NYSE:WMB)	Utica East Ohio Midstream, LLC	\$1,958	17%

Financial Institutions (2019 Study)

- In the 2019 Study, 30 observed transactions allocated PC to intangible assets or goodwill within the financial institutions industry, which is down from 44 transactions in the 2018 Study.
- Within the financial institutions industry, customer-related assets were allocated the highest percentage of PC to any identifiable intangible asset included in the 2019 Study, with 18% and 17% of PC being allocated to this asset on a median-and-mean basis, respectively.

Summary of PC Allocated to Intangible Assets (Financial Institutions) 2019 Study

	Count		PC		% of PC			
	Number	%	Median	Mean	Low	High	Median	Mean
Developed Technology	8	27%	\$94	\$229	1%	10%	4%	5%
Trademarks and Trade Names	16	53%	150	912	0%	92%	1%	9%
Customer-Related Assets	26	87%	155	1,161	0%	47%	18%	17%
Other Identifiable Intangible Assets	15	50%	374	1,847	0%	79%	2%	10%
Goodwill	29	97%	155	1,097	2%	80%	40%	35%

- Notable transaction activity in this industry included the following:

\$ in millions

Date	Acquirer	Target	PC	Total % Allocated to Intangible Assets
4/1/2019	Marsh & McLennan Companies, Inc. (NYSE:MMC)	Jardine Lloyd Thompson Group Ltd.	\$8,643	18%
5/23/2019	The Hartford Financial Services Group, Inc. (NYSE:HIG)	The Navigators Group, Inc.	\$7,063	8%
1/1/2019	Cadence Bancorporation (NYSE:CADE)	State Bank Financial Corp.	\$5,023	2%
7/1/2019	Jones Lang LaSalle Inc. (NYSE:JLL)	HFF, Inc.	\$2,975	12%
9/20/2019	Hancock Whitney Corp. (NASDAQGS:HWC)	MidSouth Bancorp, Inc.	\$1,578	2%

Healthcare (2019 Study)

- In the 2019 Study, 102 observed transactions allocated PC to intangible assets or goodwill within the healthcare industry, which is down from 119 transactions in the 2018 Study.
- Within the healthcare industry, IPR&D and customer-related assets were allocated the highest percentage of PC to any identifiable intangible asset.

Summary of PC Allocated to Intangible Assets (Healthcare) 2019 Study

	Count		PC		% of PC			
	Number	%	Median	Mean	Low	High	Median	Mean
Developed Technology	69	68%	\$79	\$817	0%	96%	20%	29%
IPR&D	24	24%	223	5,403	3%	100%	38%	46%
Trademarks and Trade Names	50	49%	88	500	0%	36%	3%	5%
Customer-Related Assets	56	55%	88	425	0%	89%	56%	18%
Other Identifiable Intangible Assets	38	37%	126	3,904	0%	84%	3%	3%
Goodwill	92	90%	88	629	2%	91%	47%	47%

- Notable transaction activity in this industry included the following:

\$ in millions

Date	Acquirer	Target	PC	Total % Allocated to Intangible Assets
11/20/2019	Bristol-Myers Squibb Co. (NYSE:BMJ)	Celgene Corp.	\$100,519	64%
11/21/2019	Amgen Inc.	Otezla/Celgene Corp.	\$13,569	97%
7/29/2019	Pfizer Inc. (NYSE:PFE)	Array BioPharma Inc.	\$12,400	51%
2/15/2019	Eli Lilly and Co. (NYSE:LLY)	Loxo Oncology, Inc.	\$7,977	71%
10/11/2019	3M Co. (NYSE:MMM)	Acelity, Inc.	\$7,353	49%

Industrials (2019 Study)

- In the 2019 Study, 64 observed transactions allocated PC to intangible assets or goodwill within the industrials industry, which is down from 100 transactions in the 2019 Study.
- Within the industrials industry, customer-related assets were allocated the highest percentage of PC to any identifiable intangible asset, with 19% and 20% of PC being allocated to this asset on a median-and-mean basis.

Summary of PC Allocated to Intangible Assets (Industrials) 2019 Study

	Count		PC		% of PC			
	Number	%	Median	Mean	Low	High	Median	Mean
Developed Technology	29	45%	\$129	\$889	1%	66%	8%	13%
IPR&D	6	9%	193	574	0%	40%	9%	12%
Trademarks and Trade Names	45	70%	110	672	0%	23%	4%	6%
Customer-Related Assets	59	92%	110	591	1%	57%	19%	20%
Other Identifiable Intangible Assets	22	34%	90	376	0%	43%	2%	6%
Goodwill	61	95%	110	577	0%	85%	40%	38%

- Notable transaction activity in this industry included the following:

\$ in millions

Date	Acquirer	Target	PC	Total % Allocated to Intangible Assets
2/25/2019	Wabtec Corp. (NYSE:WAB)	GE Transportation	\$12,608	26%
8/30/2019	HealthEquity, Inc. (NASDAQGS:HQY)	WageWorks, Inc.	\$2,568	28%
11/21/2019	Hillenbrand, Inc. (NYSE:HI)	Milacron Holdings Corp.	\$2,450	33%
2/28/2019	Univar Solutions Inc. (NYSE:UNVR)	Nexeo Solutions, Inc.	\$2,394	6%
9/16/2019	Parker-Hannifin Corp. (NYSE:PH)	Exotic Metals Forming Company LLC	\$1,765	50%

Infrastructure Services and Materials (2019 Study)

- In the 2019 Study, 23 observed transactions allocated PC to intangible assets or goodwill within the infrastructure services and materials industry, which is down from 24 transactions in the 2018 Study.
- Within the infrastructure services and materials industry, IPR&D was allocated the highest percentage of PC to any identifiable intangible asset, with 49% 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 infrastructure services and materials industry were customer-related assets, with 19% and 19% of PC allocated to these assets on a median-and-mean basis, respectively.

Summary of PC Allocated to Intangible Assets (ISM) 2019 Study

	Count		PC		% of PC			
	Number	%	Median	Mean	Low	High	Median	Mean
Developed Technology	12	52%	\$314	\$1,487	1%	40%	8%	10%
IPR&D	2	9%	920	920	0%	98%	49%	49%
Trademarks and Trade Names	14	61%	214	5,992	0%	12%	4%	5%
Customer-Related Assets	22	96%	169	4,709	1%	39%	19%	19%
Other Identifiable Intangible Assets	5	22%	741	16,786	0%	2%	0%	1%
Goodwill	21	91%	170	4,933	9%	55%	33%	33%

- Notable transaction activity in this industry included the following:

\$ in millions

Date	Acquirer	Target	PC	Total % Allocated to Intangible Assets
3/1/2019	Linde plc (NYSE:LIN)	Linde AG	\$74,088	22%
1/14/2019	Suzano S.A. (BOVESPA:SUZB3)	Fibria Celulose S.A.	\$11,072	22%
6/11/2019	Amcor plc (ASX:AMC)	Bemis Company, Inc.	\$8,233	25%
10/29/2019	Parker-Hannifin Corp. (NYSE:PH)	LORD Corp.	\$4,365	33%
8/1/2019	Quaker Chemical Corp. (NYSE:KWR)	Houghton International Inc.	\$2,081	49%

Technology (2019 Study)

- In the 2019 Study, 206 observed transactions allocated PC to intangible assets or goodwill within the technology industry, which is up from 196 transactions in the 2018 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 18% and 24% 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 12% and 17% of PC allocated to these assets on a median-and-mean basis, respectively.

Summary of PC Allocated to Intangible Assets (Technology) 2019 Study

	Count		PC		% of PC			
	Number	%	Median	Mean	Low	High	Median	Mean
Developed Technology	185	90%	\$60	\$1,499	0%	97%	18%	24%
IPR&D	12	6%	363	946	0%	36%	5%	9%
Trademarks and Trade Names	100	49%	92	2,504	0%	14%	1%	2%
Customer-Related Assets	161	78%	78	1,729	0%	88%	12%	17%
Other Identifiable Intangible Assets	45	22%	67	1,335	0%	28%	1%	4%
Goodwill	203	99%	64	1,395	2%	92%	53%	52%

- Notable transaction activity in this industry included the following:

\$ in millions

Date	Acquirer	Target	PC	Total % Allocated to Intangible Assets
7/29/2019	Fiserv, Inc. (NASDAQGS:FISV)	First Data Corp.	\$65,540	25%
7/31/2019	Fidelity National Information Services, Inc. (NYSE:FIS)	Worldpay, Inc.	\$58,965	25%
7/9/2019	International Business Machines Corp. (NYSE:IBM)	Red Hat, Inc.	\$40,722	33%
9/17/2019	Global Payments Inc. (NYSE:GPN)	Total System Services, Inc.	\$31,341	35%
7/31/2019	Salesforce.com, Inc. (NYSE:CRM)	Tableau Software, Inc.	\$15,996	20%

Telecom (2019 Study)

- In the 2019 Study, 30 observed transactions allocated PC to intangible assets or goodwill within the telecom industry, which is up from 25 transactions in the 2018 Study.
- Within the telecom industry, customer-related assets were allocated the highest percentage of PC to any identifiable intangible asset, with 19% and 19% 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 10% and 19% of PC allocated to these assets on a median-and-mean basis.

Summary of PC Allocated to Intangible Assets (Telecom) 2019 Study

	Count		PC		% of PC			
	Number	%	Median	Mean	Low	High	Median	Mean
Developed Technology	15	50%	\$26	\$276	2%	71%	10%	19%
Trademarks and Trade Names	22	73%	118	927	0%	33%	3%	7%
Customer-Related Assets	23	77%	55	805	2%	33%	19%	19%
Other Identifiable Intangible Assets	9	30%	546	1,982	0%	30%	7%	11%
Goodwill	30	100%	39	707	13%	93%	55%	53%

- Notable transaction activity in this industry included the following:

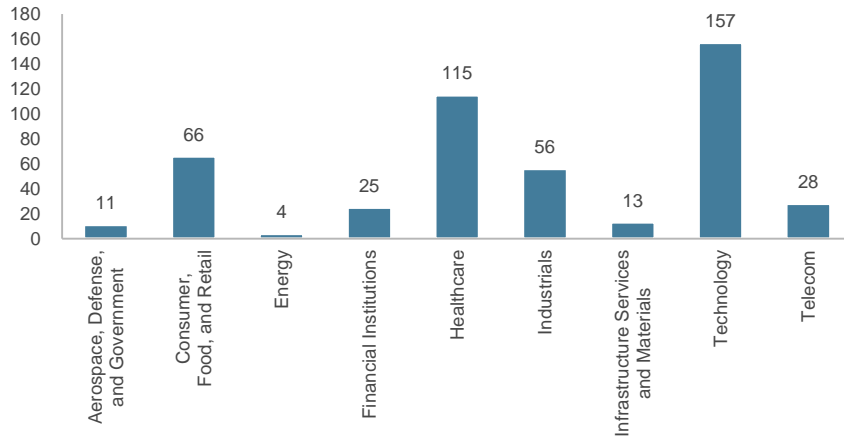
\$ in millions

Date	Acquirer	Target	PC	Total % Allocated to Intangible Assets
8/23/2019	Sinclair Broadcast Group, Inc. (NASDAQGS:SBGI)	Fox Sports Net LLC	\$11,022	61%
11/19/2019	Gannett Co., Inc. (NYSE:GCI)	Gannett Co., Inc.	\$2,615	23%
3/4/2019	JOYY Inc. (NASDAQGS:YY)	BIGO Technology Pte. Ltd.	\$2,608	20%
7/30/2019	Willis Towers Watson Public Ltd. Co. (NASDAQGS:WLTW)	MG LLC	\$1,603	40%
5/16/2019	Millicom International Cellular S.A. (NASDAQGS:TIGO)	Telefonia Celular de Nicaragua, S.A.	\$679	19%

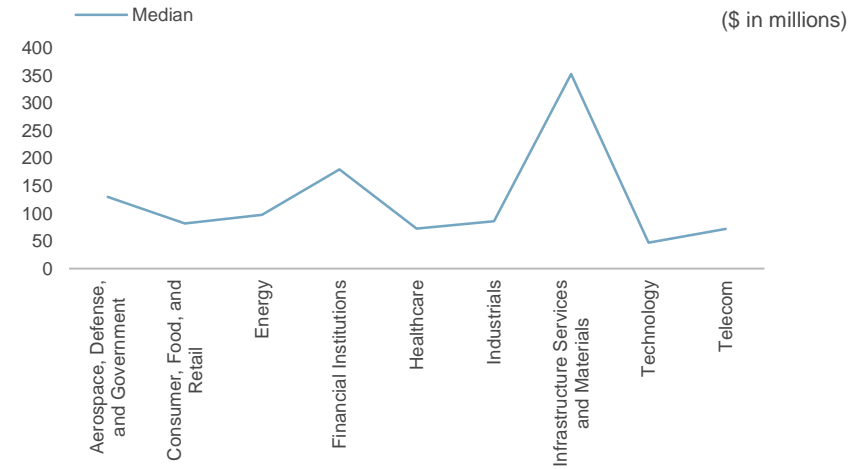
2020 Observations and Results

Industry Results (2020 Study)

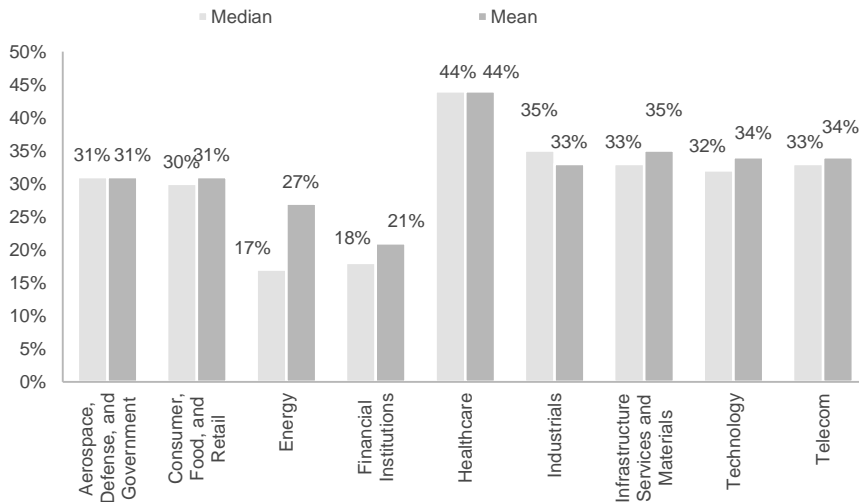
Transaction Count



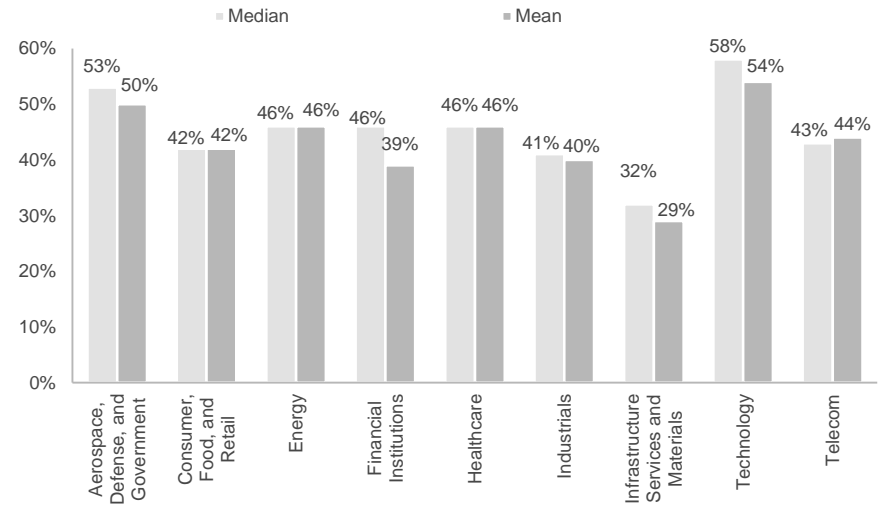
Purchase Consideration



Intangible Assets as Percentage of Purchase Consideration

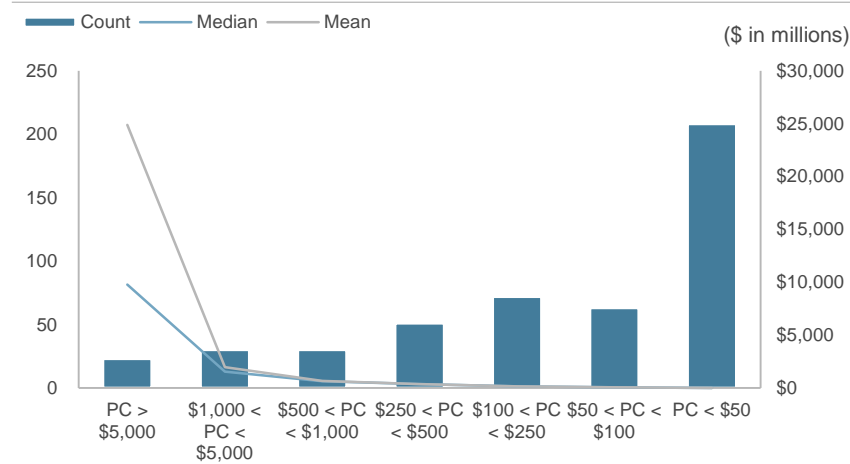


Goodwill as Percentage of Purchase Consideration

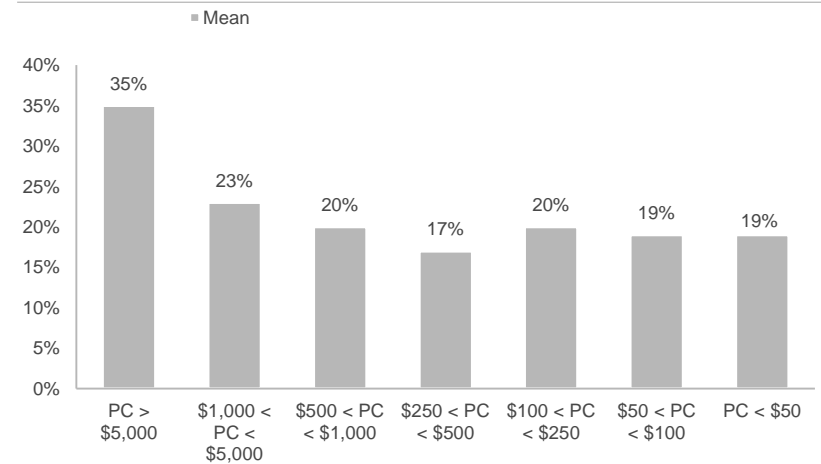


Transaction Size (2020 Study)

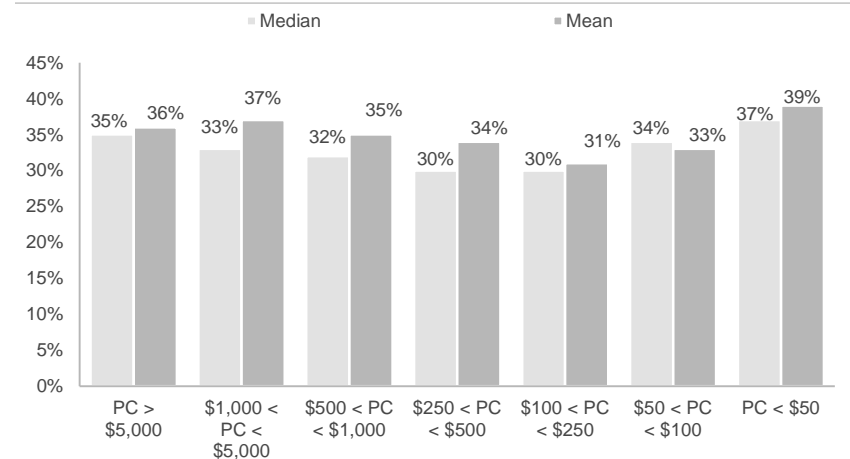
Transaction Count



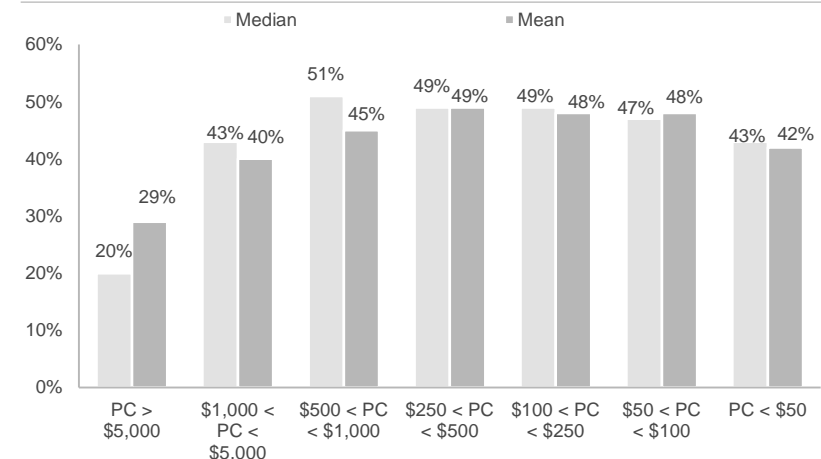
Tangible Assets as Percentage of Purchase Consideration



Intangible Assets as Percentage of Purchase Consideration



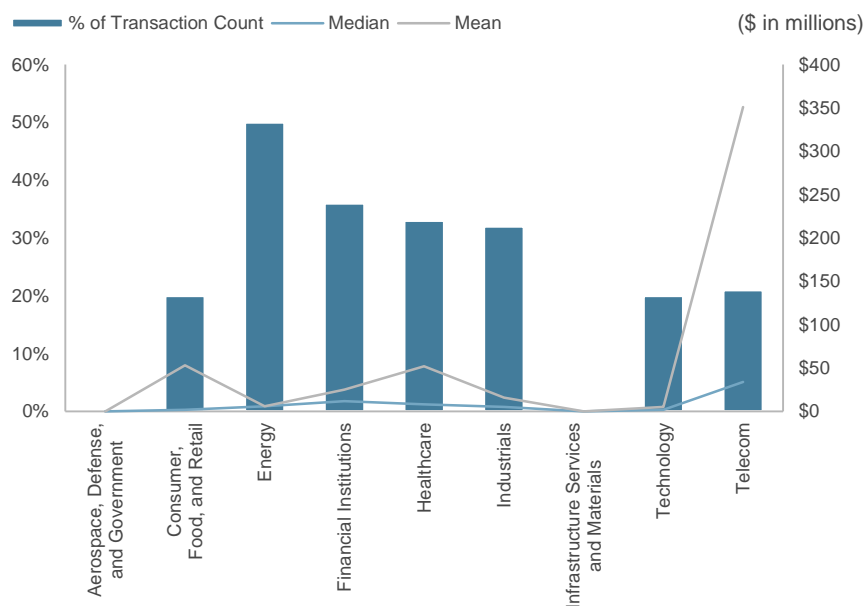
Goodwill as Percentage of Purchase Consideration



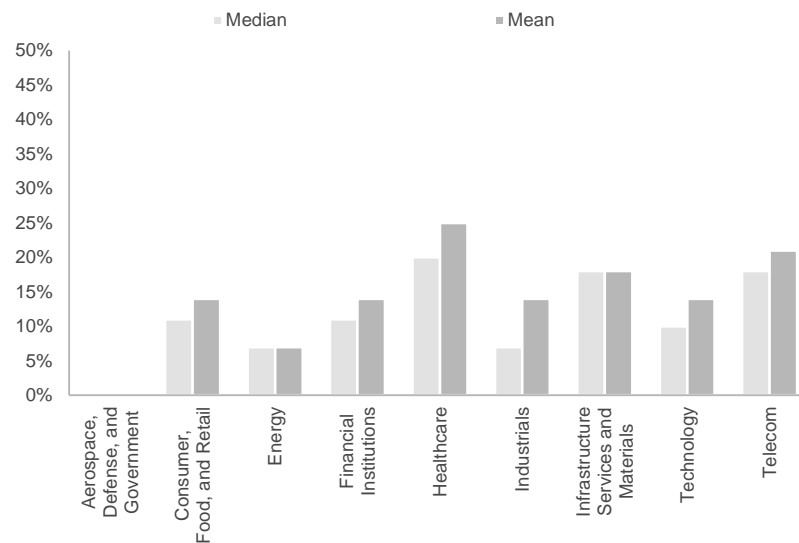
Contingent Consideration (2020 Study)

- 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 25% of the transactions in the 2020 Study had CC in the purchase price.
- CC represented 12% and 18% of PC when measured on the median and mean, respectively.

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.

Indefinite-Lived Intangible Assets (2020 Study)

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

Top 10 Transactions by Dollar Allocation to Indefinite-Lived Assets 2020

\$ 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
4/1/2020	T-Mobile US, Inc. (NASDAQGS:TMUS)	Sprint Corp.	\$95,512	\$45,400	48%	54%	License
4/3/2020	Raytheon Technologies Corp. (NYSE:RTX)	Raytheon Co.	\$60,419	\$5,430	9%	32%	Trademark and Trade Name
2/29/2020	Ingersoll Rand Inc. (NYSE:IR)	Industrial Segment Business of Ingersoll-Rand plc	\$10,781	\$1,312	12%	35%	Trademark and Trade Name
12/28/2020	V.F. Corp. (NYSE:VFC)	Supreme Holdings, Inc.	\$2,902	\$1,201	41%	41%	Trademark and Trade Name
6/22/2020	WESCO International, Inc. (NYSE:WCC)	Anixter International Inc.	\$6,839	\$735	11%	27%	Trademark and Trade Name
10/1/2020	Kimberly-Clark Corp. (NYSE:KMB)	PT. Softex Indonesia	\$1,505	\$637	42%	50%	Trademark and Trade Name
12/23/2020	The Home Depot, Inc. (NYSE:HD)	HD Supply Holdings, Inc.	\$10,604	\$520	5%	31%	Trademark and Trade Name
11/30/2020	McCormick & Company, Inc. (NYSE:MKC)	The Cholula Food Company Inc.	\$856	\$380	44%	47%	Trademark and Trade Name
2/28/2020	Primo Water Corp. (TSX:PRMW)	Primo Water Corp.	\$882	\$175	20%	48%	Trademark and Trade Name
9/3/2020	Roper Technologies, Inc. (NYSE:ROP)	Project Viking Holdings, Inc.	\$5,889	\$120	2%	45%	Trademark and Trade Name

Aerospace, Defense, and Government (2020 Study)

- In the 2020 Study, 11 observed transactions allocated PC to intangible assets or goodwill within the aerospace, defense, and government (ADG) industry, down from 15 transactions in the 2019 Study.
- Within the ADG industry, customer-related assets were allocated the highest percentage of PC to any identifiable intangible asset, with 19% and 18% 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 17% and 16% of PC allocated to these assets on a median-and-mean basis, respectively.

Summary of PC Allocated to Intangible Assets (ADG) 2020 Study

	Count		PC		% of PC			
	Number	%	Median	Mean	Low	High	Median	Mean
Developed Technology	8	73%	\$87	\$273	3%	30%	17%	16%
IPR&D	1	9%	1,286	1,286	7%	7%	7%	7%
Trademarks and Trade Names	5	45%	39	85	0%	3%	1%	1%
Customer-Related Assets	11	100%	130	278	4%	35%	19%	18%
Other Identifiable Intangible Assets	3	27%	430	579	2%	11%	2%	5%
Goodwill	11	100%	130	278	25%	76%	53%	50%

- Notable transaction activity in this industry included the following:

\$ in millions

Date	Acquirer	Target	PC	Total % Allocated to Intangible Assets
5/4/2020	Leidos Holdings, Inc. (NYSE:LDOS)	L3 Security & Detection Systems, Inc./MacDonald Humfrey Ltd.	\$1,286	28%
6/10/2020	Cognizant Technology Solutions Corp. (NASDAQGS:CTSH)	Collaborative Solutions, LLC	\$430	10%
12/21/2020	Raytheon Technologies Corp. (NYSE:RTX)	Blue Canyon Technologies, Inc.	\$407	35%
8/11/2020	CACI International Inc. (NYSE:CACI)	Ascent Vision Technologies, LLC	\$345	39%
7/1/2020	Maxar Technologies Inc. (NYSE:MAXR)	Vricon, Inc.	\$287	25%

Consumer, Food, and Retail (2020 Study)

- In the 2020 Study, 66 observed transactions allocated PC to intangible assets or goodwill within the CFR industry, down from 81 transactions in the 2019 Study.
- 9% and 14% of PC were allocated to trademarks and trade names on a median-and-mean basis, respectively.
- 10% and 16% of PC were allocated to customer-related assets on a median-and-mean basis, respectively.

Summary of PC Allocated to Intangible Assets (CFR) 2020 Study

	Count		PC		% of PC			
	Number	%	Median	Mean	Low	High	Median	Mean
Developed Technology	24	36%	\$72	\$367	0%	76%	6%	14%
Trademarks and Trade Names	56	85%	111	429	0%	54%	9%	14%
Customer-Related Assets	45	68%	85	347	0%	67%	10%	16%
Other Identifiable Intangible Assets	27	41%	58	223	0%	99%	1%	9%
Goodwill	61	92%	104	402	3%	92%	42%	42%

- Notable transaction activity in this industry included the following:

\$ in millions

Date	Acquirer	Target	PC	Total % Allocated to Intangible Assets
10/1/2020	BorgWarner Inc. (NYSE:BWA)	Delphi Technologies plc	\$5,316	14%
12/28/2020	V.F. Corp. (NYSE:VFC)	Supreme Holdings, Inc.	\$2,902	41%
1/3/2020	The Coca-Cola Company (NYSE:KO)	fairlife, LLC	\$2,406	54%
10/1/2020	Kimberly-Clark Corp. (NYSE:KMB)	PT. Softex Indonesia	\$1,505	50%
4/1/2020	Mondelez International, Inc. (NASDAQGS:MDLZ)	Give and Go Prepared Foods Corp.	\$1,353	41%

Energy (2020 Study)

- In the 2020 Study, four observed transactions allocated PC to intangible assets or goodwill within the energy industry, which is down from nine transactions in the 2019 Study.
- Within the energy industry, IPR&D was allocated the highest percentage of PC to any identifiable intangible asset, with 70% and 70% of PC being allocated to this asset on a median-and-mean basis, respectively.

Summary of PC Allocated to Intangible Assets (Energy) 2020 Study

	Count		PC		% of PC			
	Number	%	Median	Mean	Low	High	Median	Mean
Developed Technology	1	25%	\$83	\$83	3%	3%	3%	3%
IPR&D	1	25%	99	99	70%	70%	70%	70%
Trademarks and Trade Names	1	25%	96	96	0%	0%	0%	0%
Customer-Related Assets	2	50%	129	129	3%	31%	17%	17%
Goodwill	2	50%	89	89	44%	48%	46%	46%

- Notable transaction activity in this industry included the following:

\$ in millions

Date	Acquirer	Target	PC	Total % Allocated to Intangible Assets
4/1/2020	Crestwood Equity Partners LP (NYSE:CEQP)	NGL Terminal Assets of Plains All American Pipeline, LP	\$162	31%
10/27/2020	Viridian Therapeutics, Inc. (NASDAQM:VRDN)	Viridian Therapeutics, Inc.	\$99	70%
6/1/2020	National Energy Services Reunited Corp. (NASDAQM:NESR)	Sahara Petroleum Services Company S.A.E.	\$96	3%
6/18/2020	Plug Power Inc. (NASDAQM:PLUG)	United Hydrogen Group, Inc.	\$83	3%

Financial Institutions (2020 Study)

- In the 2020 Study, 25 observed transactions allocated PC to intangible assets or goodwill within the financial institutions industry, which is down from 30 transactions in the 2019 Study.
- Within the financial institutions industry, customer-related assets were allocated the highest percentage of PC to any identifiable intangible asset included in the 2020 Study, with 12% and 20% of PC being allocated to this asset on a median-and-mean basis, respectively.

Summary of PC Allocated to Intangible Assets (Financial Institutions) 2020 Study

	Count		PC		% of PC			
	Number	%	Median	Mean	Low	High	Median	Mean
Developed Technology	5	20%	\$768	\$14,583	0%	32%	2%	10%
IPR&D	1	4%	36	36	2%	2%	2%	2%
Trademarks and Trade Names	14	56%	199	5,663	0%	10%	1%	2%
Customer-Related Assets	20	80%	116	7,921	0%	76%	12%	20%
Other Identifiable Intangible Assets	13	52%	307	7,077	0%	32%	2%	5%
Goodwill	23	92%	137	7,086	1%	94%	46%	39%

- Notable transaction activity in this industry included the following:

\$ in millions

Date	Acquirer	Target	PC	Total % Allocated to Intangible Assets
10/1/2020	Morgan Stanley (NYSE:MS)	E*TRADE Financial, LLC	\$76,437	4.29%
10/6/2020	The Charles Schwab Corp. (NYSE:SCHW)	TD Ameritrade Holding Corp.	\$70,161	12.66%
5/26/2020	The Charles Schwab Corp. (NYSE:SCHW)	Certain Assets of USAA Investment Management Company	\$6,053	18.32%
5/1/2020	United Bankshares, Inc. (NASDAQ:UBSI)	Carolina Financial Corp.	\$5,121	0.07%
7/31/2020	Provident Financial Services, Inc. (NYSE:PFS)	SB One Bancorp	\$2,196	0.46%

Healthcare (2020 Study)

- In the 2020 Study, 115 observed transactions allocated PC to intangible assets or goodwill within the healthcare industry, which is up from 102 transactions in the 2019 Study.
- Within the healthcare industry, IPR&D was allocated 35% and 47% of PC on a median-and-mean basis, respectively.

Summary of PC Allocated to Intangible Assets (Healthcare) 2020 Study

	Count		PC		% of PC			
	Number	%	Median	Mean	Low	High	Median	Mean
Developed Technology	62	54%	\$75	\$2,087	0%	99%	24%	31%
IPR&D	36	31%	393	4,759	0%	100%	35%	47%
Trademarks and Trade Names	54	47%	78	992	0%	56%	2%	5%
Customer-Related Assets	63	55%	76	468	0%	67%	37%	22%
Other Identifiable Intangible Assets	40	35%	107	1,425	0%	50%	2%	2%
Goodwill	101	88%	76	1,785	1%	88%	46%	46%

- Notable transaction activity in this industry included the following:

\$ in millions

Date	Acquirer	Target	PC	Total % Allocated to Intangible Assets
5/8/2020	AbbVie Inc. (NYSE:ABBV)	Allergan plc	\$99,389	70%
10/23/2020	Gilead Sciences, Inc. (NASDAQGS:GILD)	Immunomedics, Inc.	\$26,262	78%
10/30/2020	Teladoc Health, Inc. (NYSE:TDOC)	Livongo Health, Inc.	\$14,710	11%
11/16/2020	Bristol-Myers Squibb Co.(NYSE:BMJ)	MyoKardia, Inc.	\$12,886	90%
8/1/2020	Elanco Animal Health Inc. (NYSE:ELAN)	Bayer Animal Health GmbH/KVP Pharma+Veterinär Produkte GmbH/Other Animal Health Business of Bayer	\$8,154	51%

Industrials (2020 Study)

- In the 2020 Study, 56 observed transactions allocated PC to intangible assets or goodwill within the industrials industry, which is down from 64 transactions in the 2019 Study.
- Within the industrials industry, IPR&D was allocated the highest percentage of PC to any identifiable intangible asset, with 30% and 30% 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 customer-related assets, with 22% and 23% of PC allocated to these assets on a median-and-mean basis, respectively.

Summary of PC Allocated to Intangible Assets (Industrials) 2020 Study

	Count		PC		% of PC			
	Number	%	Median	Mean	Low	High	Median	Mean
Developed Technology	24	43%	\$140	\$3,921	0%	16%	5%	6%
IPR&D	2	4%	185	185	13%	46%	30%	30%
Trademarks and Trade Names	35	63%	92	2,996	0%	37%	5%	8%
Customer-Related Assets	55	98%	85	2,087	1%	62%	22%	23%
Other Identifiable Intangible Assets	23	41%	69	846	0%	23%	2%	5%
Goodwill	55	98%	87	2,090	2%	85%	41%	40%

- Notable transaction activity in this industry included the following:

\$ in millions

Date	Acquirer	Target	PC	Total % Allocated to Intangible Assets
4/3/2020	Raytheon Technologies Corp. (NYSE:RTX)	Raytheon Co.	\$60,419	32%
2/29/2020	Ingersoll Rand Inc. (NYSE:IR)	Industrial Segment Business of Ingersoll-Rand plc	\$10,781	35%
12/23/2020	The Home Depot, Inc. (NYSE:HD)	HD Supply Holdings, Inc.	\$10,604	31%
10/1/2020	Clarivate plc (NYSE:CLVT)	CPA Global Group Holdings Ltd.	\$9,783	50%
12/3/2020	Intuit Inc. (NASDAQGS:INTU)	Credit Karma, Inc.	\$8,231	41%

Infrastructure Services and Materials (2020 Study)

- In the 2020 Study, 13 observed transactions allocated PC to intangible assets or goodwill within the infrastructure services and materials industry, which is down from 23 transactions in the 2019 Study.
- Within the infrastructure services and materials industry, customer-related assets were allocated the highest percentage of PC to any identifiable intangible asset, with 22% and 21% of PC being allocated to this asset on a median-and-mean basis, respectively.

Summary of PC Allocated to Intangible Assets (ISM) 2020 Study

	Count		PC		% of PC			
	Number	%	Median	Mean	Low	High	Median	Mean
Developed Technology	9	69%	\$353	\$1,002	1%	23%	8%	9%
Trademarks and Trade Names	8	62%	630	1,142	0%	68%	4%	12%
Customer-Related Assets	12	92%	468	936	1%	43%	22%	21%
Other Identifiable Intangible Assets	5	38%	343	483	0%	10%	2%	4%
Goodwill	12	92%	468	936	3%	54%	32%	29%

- Notable transaction activity in this industry included the following:

\$ in millions

Date	Acquirer	Target	PC	Total % Allocated to Intangible Assets
3/13/2020	Cleveland-Cliffs Inc. (NYSE:CLF)	AK Steel Holding Corp.	\$5,211	3%
7/1/2020	Avient Corp. (NYSE:AVNT)	Color and Additive Masterbatches Business of Clariant	\$1,868	28%
1/2/2020	Tenaris S.A. (BIT:TEN)	IPSCO Tubulars Inc.	\$1,172	15%
12/30/2020	McCormick & Company, Inc. (NYSE:MKC)	FONA International Inc.	\$720	37%
3/6/2020	Eagle Materials Inc. (NYSE:EXP)	Kosmos Cement Plant and Related Assets of Kosmos Cement Company	\$677	6%

Technology (2020 Study)

- In the 2020 Study, 157 observed transactions allocated PC to intangible assets or goodwill within the technology industry, which is down from 206 transactions in the 2019 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 17% 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 11% and 16% of PC allocated to these assets on a median-and-mean basis, respectively.

Summary of PC Allocated to Intangible Assets (Technology) 2020 Study

	Count		PC		% of PC			
	Number	%	Median	Mean	Low	High	Median	Mean
Developed Technology	132	84%	\$49	\$417	1%	81%	17%	21%
IPR&D	12	8%	189	2,230	1%	69%	6%	13%
Trademarks and Trade Names	84	54%	64	649	0%	23%	1%	3%
Customer-Related Assets	131	83%	64	478	1%	100%	11%	16%
Other Identifiable Intangible Assets	34	22%	35	410	0%	43%	1%	4%
Goodwill	156	99%	48	409	2%	92%	58%	54%

- Notable transaction activity in this industry included the following:

\$ in millions

Date	Acquirer	Target	PC	Total % Allocated to Intangible Assets
9/4/2020	Intercontinental Exchange, Inc. (NYSE:ICE)	Ellie Mae, Inc.	\$12,676	35%
4/27/2020	NVIDIA Corp. (NASDAQGS:NVDA)	Mellanox Technologies, Ltd.	\$8,074	37%
6/22/2020	WESCO International, Inc. (NYSE:WCC)	Anixter International Inc.	\$6,839	27%
9/3/2020	Roper Technologies, Inc. (NYSE:ROP)	Project Viking Holdings, Inc.	\$5,889	45%
12/1/2020	Uber Technologies, Inc. (NYSE:UBER)	Postmates Inc.	\$4,331	23%

Telecom (2020 Study)

- In the 2020 Study, 28 observed transactions allocated PC to intangible assets or goodwill within the telecom industry, which is down from 30 transactions in the 2019 Study.
- Within the telecom industry, customer-related assets were allocated the highest percentage of PC to any identifiable intangible asset, with 16% and 18% 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 15% and 16% of PC allocated to these assets on a median-and-mean basis.

Summary of PC Allocated to Intangible Assets (Telecom) 2020 Study

	Count		PC		% of PC			
	Number	%	Median	Mean	Low	High	Median	Mean
Developed Technology	16	57%	\$44	\$350	1%	38%	15%	16%
Trademarks and Trade Names	19	68%	87	5,615	0%	30%	6%	8%
Customer-Related Assets	21	75%	87	5,009	3%	30%	16%	18%
Other Identifiable Intangible Assets	14	50%	82	7,164	0%	59%	3%	14%
Goodwill	28	100%	72	3,849	4%	82%	43%	44%

- Notable transaction activity in this industry included the following:

\$ in millions

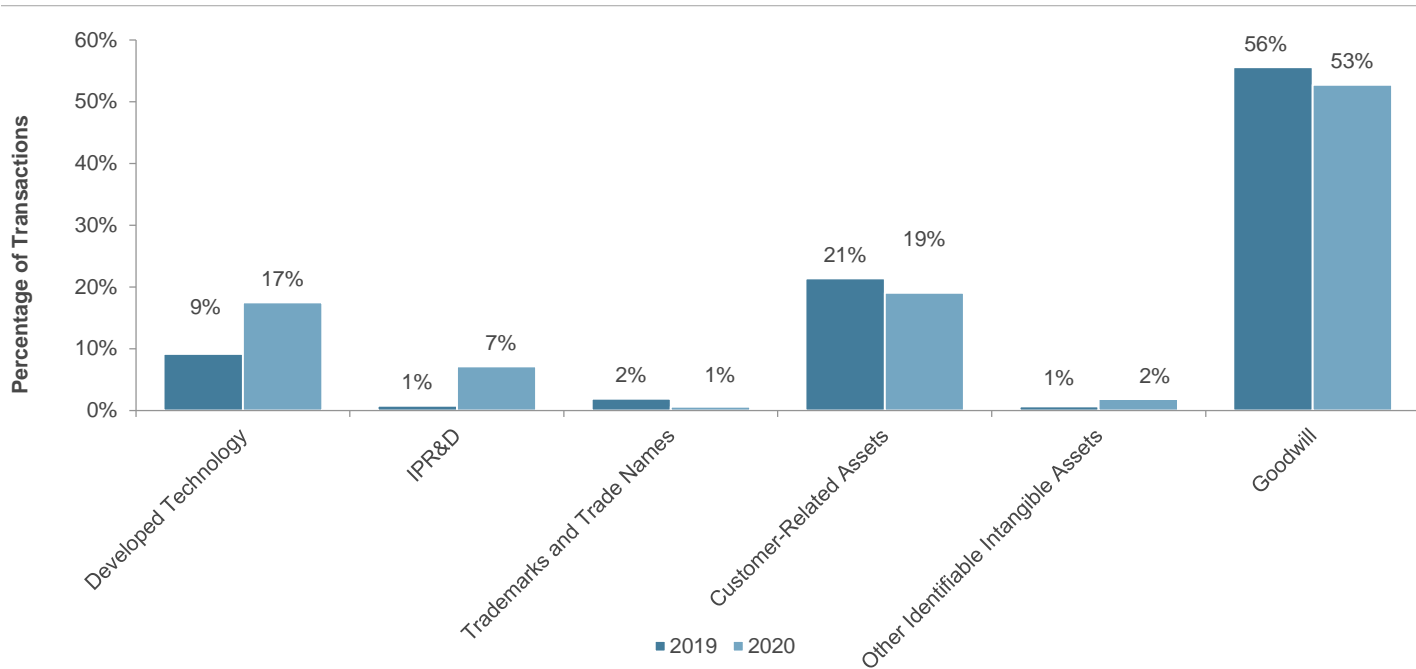
Date	Acquirer	Target	PC	Total % Allocated to Intangible Assets
4/1/2020	T-Mobile US, Inc. (NASDAQGS:TMUS)	Sprint Corp.	\$95,512	54%
8/17/2020	Dolphin Entertainment, Inc. (NASDAQCM:DLPN)	Be Social Public Relations, LLC	\$3,742	20%
7/1/2020	Zynga Inc. (NASDAQGS:ZNGA)	Peak Oyun Yazilim ve Pazarlama AS	\$2,235	28%
7/1/2020	DISH Network Corp. (NASDAQGS:DISH)	Prepaid Wireless Business of Sprint Corp.	\$2,055	29%
9/15/2020	Black Knight, Inc. (NYSE:BKI)	Optimal Blue LLC	\$1,921	36%

Appendix

Aerospace, Defense, and Government

- As illustrated below, PC allocations to developed technology and IPR&D changed by 5% or more from the 2019 Study to the 2020 Study.
- In the 2020 Study, goodwill continued to receive the highest allocation among any intangible asset, with 53% of PC within the ADG industry being allocated to goodwill on a median basis, which is down from 56% in the 2019 Study.

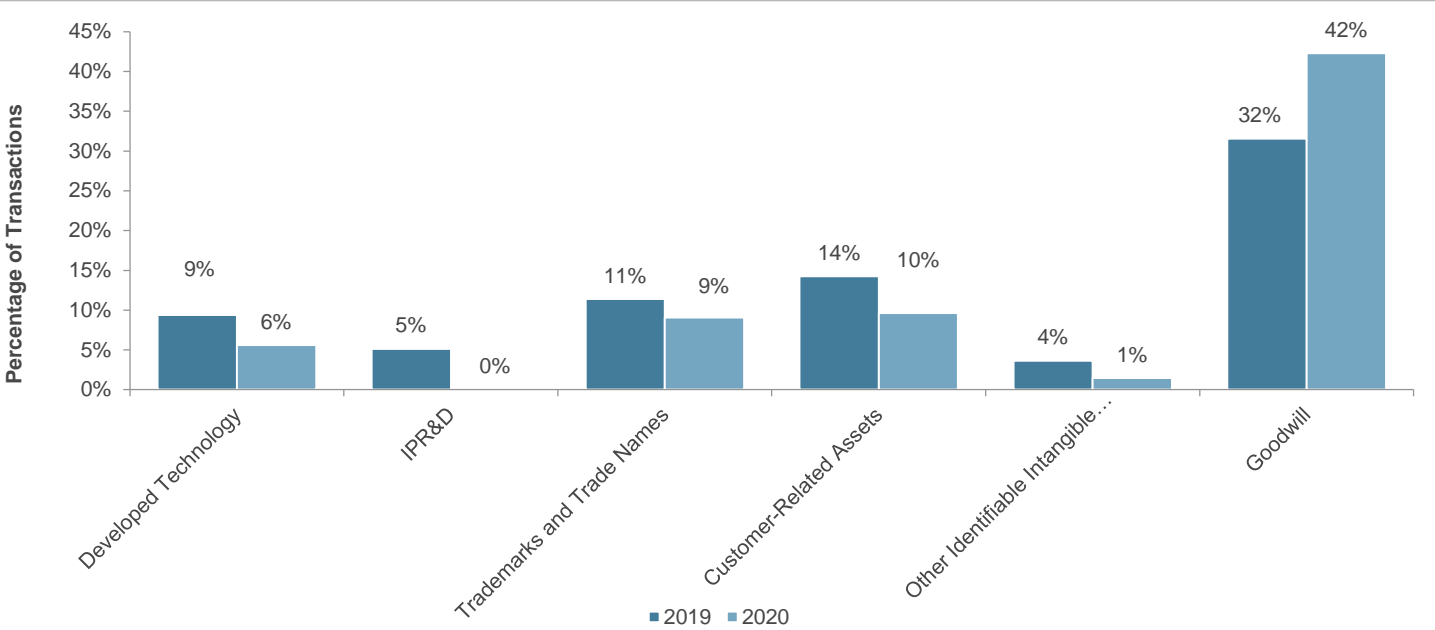
Distribution of PC Allocated to Intangible Assets and Goodwill
2019 Study vs. 2020 Study



Consumer, Food, and Retail

- As illustrated below, PC allocations to IPR&D and goodwill changed by 5% or more from the 2019 Study to the 2020 Study.
- In the 2020 Study, goodwill continued to receive the highest allocation among any intangible asset, with 42% of PC within the CFR industry being allocated to goodwill on a median basis, which is up from 32% in the 2019 Study.

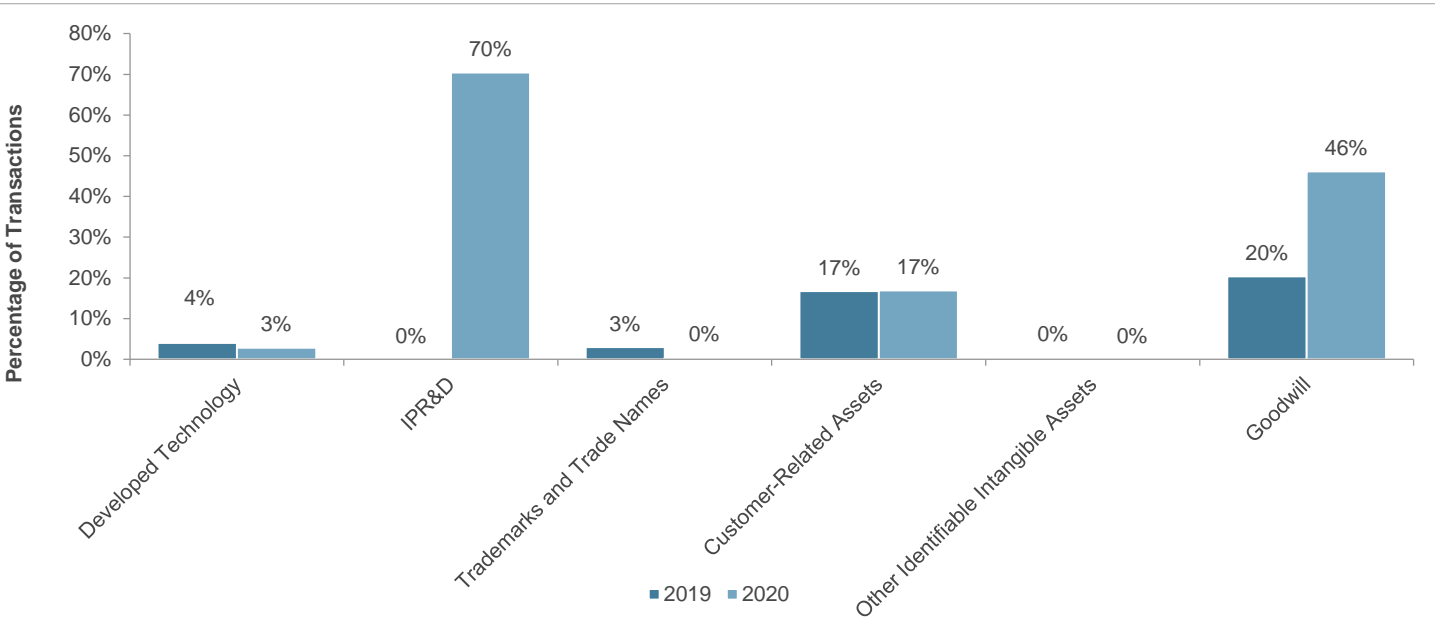
Distribution of PC Allocated to Intangible Assets and Goodwill
 2019 Study vs. 2020 Study



Energy

- As illustrated below, PC allocations to IPR&D and goodwill changed by 5% or more from the 2019 Study to the 2020 Study.
- IPR&D had the largest allocation of PC, with 70% of PC allocated to goodwill in the 2020 Study, which is up from 0% in the 2019 Study.

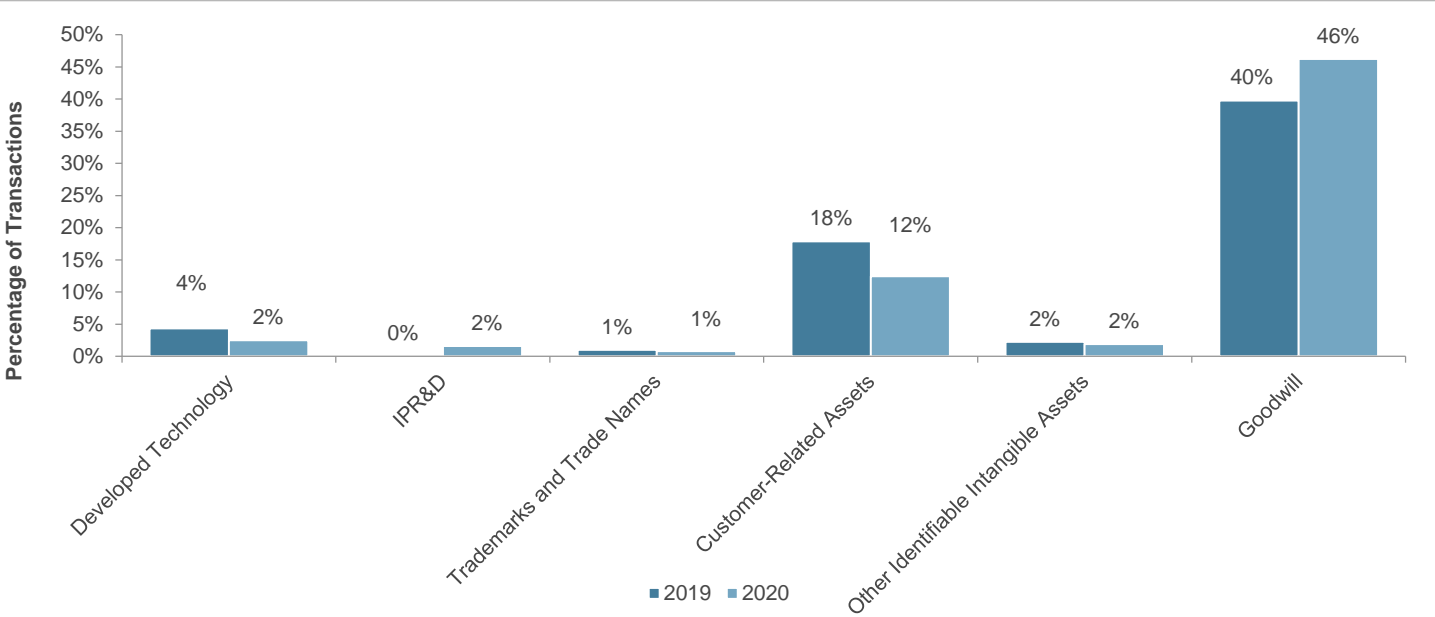
Distribution of PC Allocated to Intangible Assets and Goodwill
 2019 Study vs. 2020 Study



Financial Institutions

- As illustrated below, PC allocations to customer-related assets and goodwill changed by 5% or more from the 2019 Study to the 2020 Study.
- Goodwill had the largest allocation of PC, with 46% of PC allocated to goodwill in the 2020 Study, which is up from 40% in the 2019 Study.

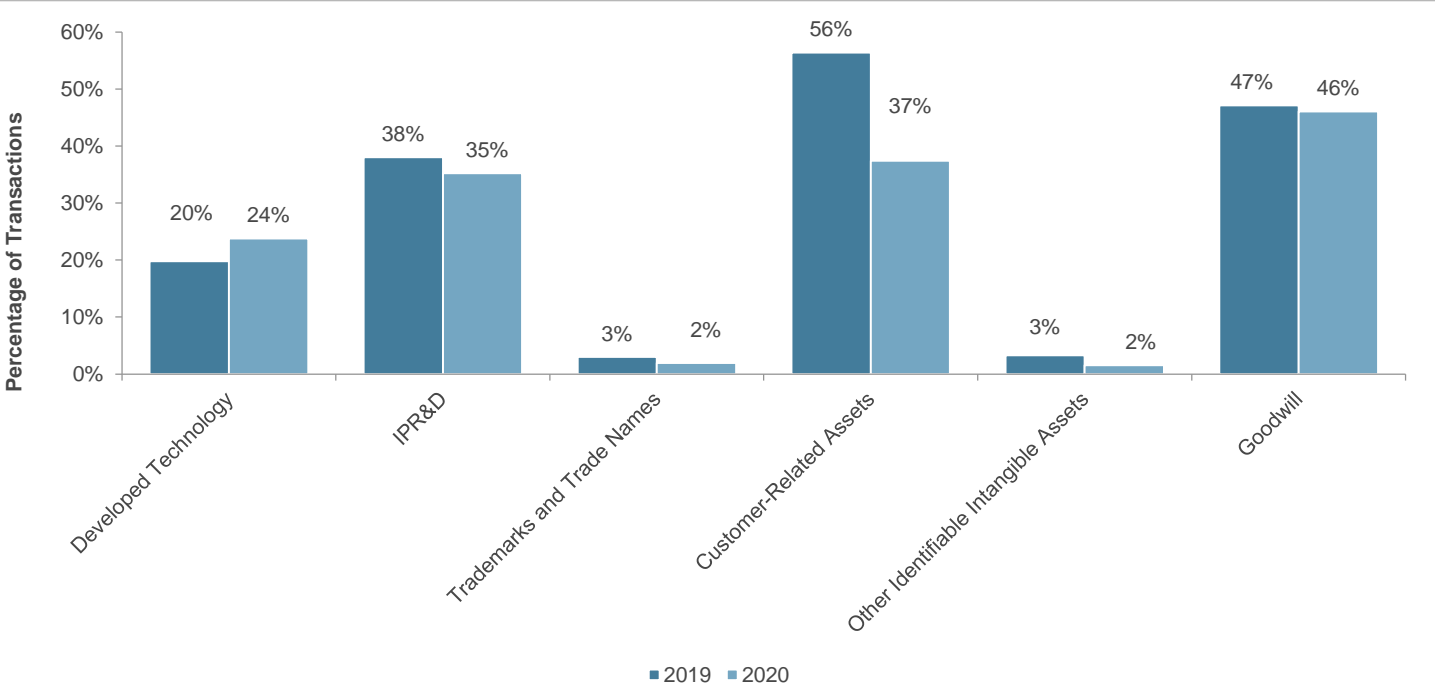
Distribution of PC Allocated to Intangible Assets and Goodwill
 2019 Study vs. 2020 Study



Healthcare

- As illustrated below, PC allocation to customer-related assets changed by more than 5% from the 2019 Study to the 2020 Study within the healthcare industry.
- In the 2020 Study, goodwill received the highest allocation of PC among any intangible asset, with 46% of PC being allocated to goodwill on a median basis.

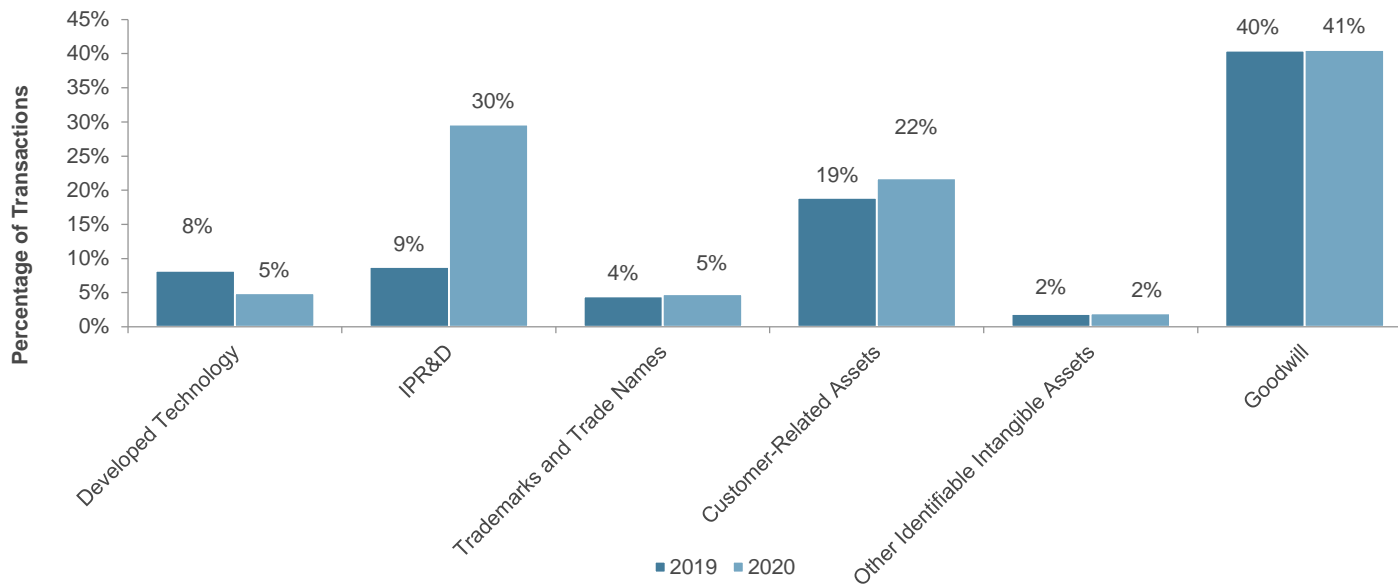
Distribution of PC Allocated to Intangible Assets and Goodwill
2019 Study vs. 2020 Study



Industrials

- In the 2020 Study, goodwill received the highest allocation of PC among any intangible asset, which is up to 41% from 40% in the 2019 study.
- IPR&D received the second highest allocation of PC, with 30% of PC being allocated to this asset on a median basis, which is up from 9% in the 2019 Study.

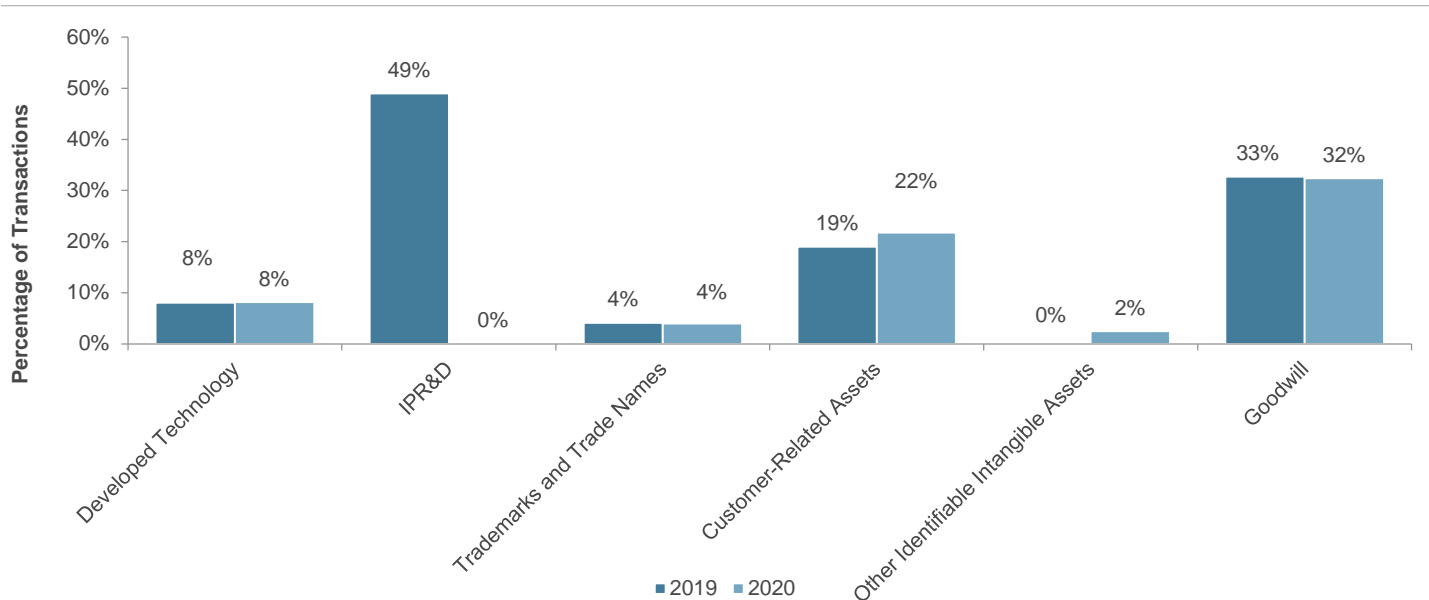
Distribution of PC Allocated to Intangible Assets and Goodwill
2019 Study vs. 2020 Study



Infrastructure Services and Materials

- As illustrated below, PC allocation to IPR&D changed by more than 5% from the 2019 Study to the 2020 Study within the infrastructure services and materials industry.
- In the 2019 Study, IPR&D received the highest allocation of PC among any intangible asset within the infrastructure services and materials industry, with 49% of PC being allocated to goodwill.

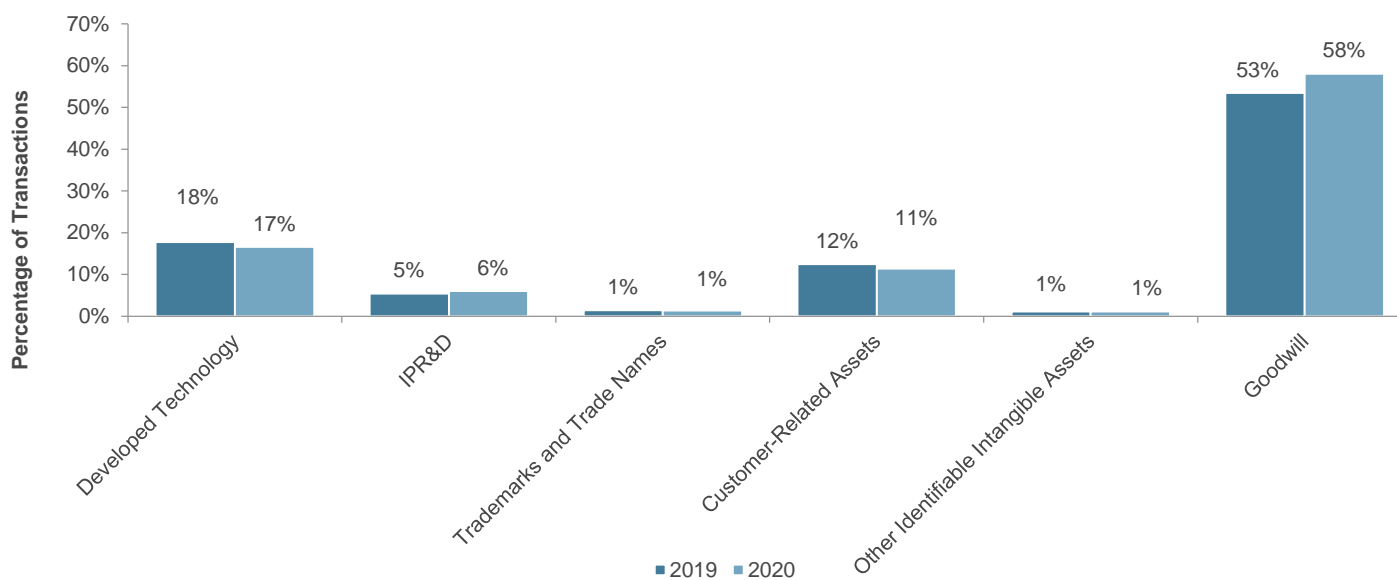
Distribution of PC Allocated to Intangible Assets and Goodwill
2019 Study vs. 2020 Study



Technology

- In the 2020 Study, goodwill received the highest allocation of PC among any intangible asset within the technology industry, with 58% of PC being allocated to this asset, which is up from 53% in the 2019 Study.
- Developed technology received the second highest allocation of PC among intangible assets, with 17% of PC being allocated to this asset on a median basis in the 2020 Study, which is down from 18% in the 2019 Study.

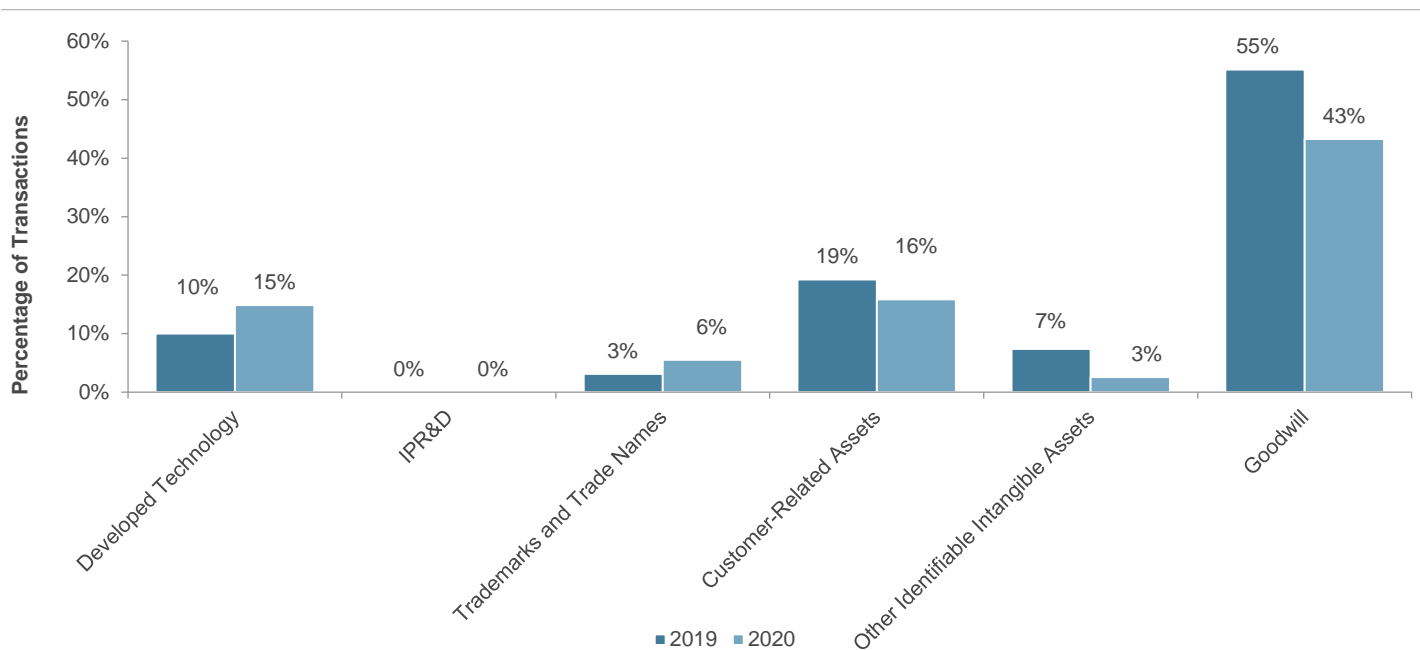
Distribution of PC Allocated to Intangible Assets and Goodwill
2019 Study vs. 2020 Study



Telecom

- As illustrated below, PC allocation to goodwill changed by more than 5% from the 2019 Study to the 2020 Study within the telecom industry.
- In the 2020 Study, goodwill received the highest allocation of PC among any intangible asset within the telecom industry, with 43% of PC being allocated to this asset, which is up from 55% in the 2019 Study.

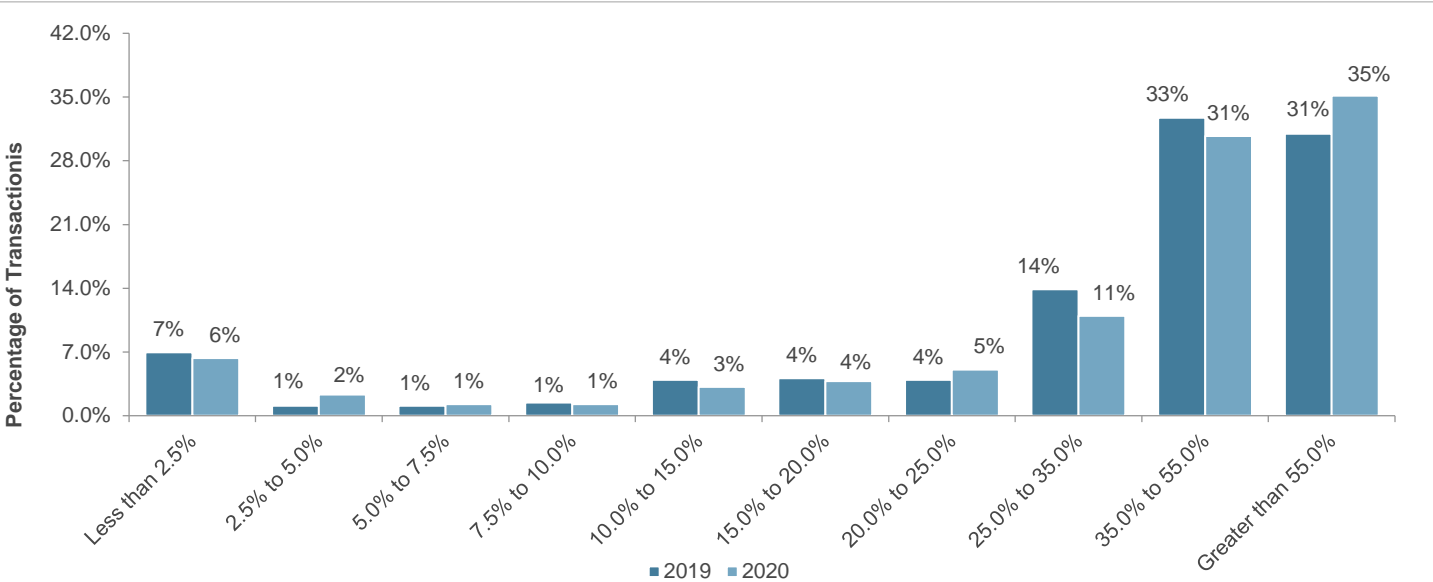
Distribution of PC Allocated to Intangible Assets and Goodwill
2019 Study vs. 2020 Study



Goodwill

- In the 2020 Study, 449 transactions (95%) allocated PC to goodwill respectively. 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 47% and 46% in 2020.
- As illustrated below, 365 deals (77%) allocated 25% or more of PC to goodwill.

Distribution of PC Allocated to Goodwill
2019 Study vs. 2020 study



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