

# 2015 Purchase Price Allocation Study

---

OCTOBER 2016

# Table of Contents

---

	Page
1. Executive Summary	3
2. 2015 Observations and Results	10
3. Appendices	29
2014 Summary Results	30
Annual Comparison	40
4. About Houlihan Lokey	46
5. Disclaimers	48

# Executive Summary

---

# Introduction

---

The United States (“U.S.”) economy expanded during 2015. Economic expansion through the first half of 2015 continued to be supported by rising incomes, ongoing job gains, increased consumer spending as a result of lower oil prices, accommodative monetary policy, and generally favorable financial conditions. Overall, the U.S. economy expanded during the fourth quarter of 2015, as GDP, the value of all goods and services in the U.S., increased at an annualized rate of 1.4%. This follows an annualized increase of GDP of 2.0% recorded in the third quarter of 2015. The deceleration in real GDP growth in the fourth quarter primarily reflected decelerations in personal consumption expenditures, exports, state and local government spending and nonresidential fixed investment. Imports, which are a subtraction from GDP, increased. With respect to M&A activity, the volume of announced transactions involving U.S.-based targets increased by 64% over 2014.

Houlihan Lokey has completed its 15th annual Purchase Price Allocation Study (the “2015 Study”) by reviewing public filings for 1,525 completed transactions in 2015 and summarizing the results for certain transactions. The 2015 Study provides statistics, other annual data and a comparison to certain 2014 results (the “2014 Study”) and 2013 results (the “2013 Study”).

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

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  
*Director*  
404.495.7033  
MDeSimone@HL.com

# Screening Criteria and Methodology

---

The universe of transactions initially considered in the 2015 Study was obtained from S&P Capital IQ using the following search criteria:

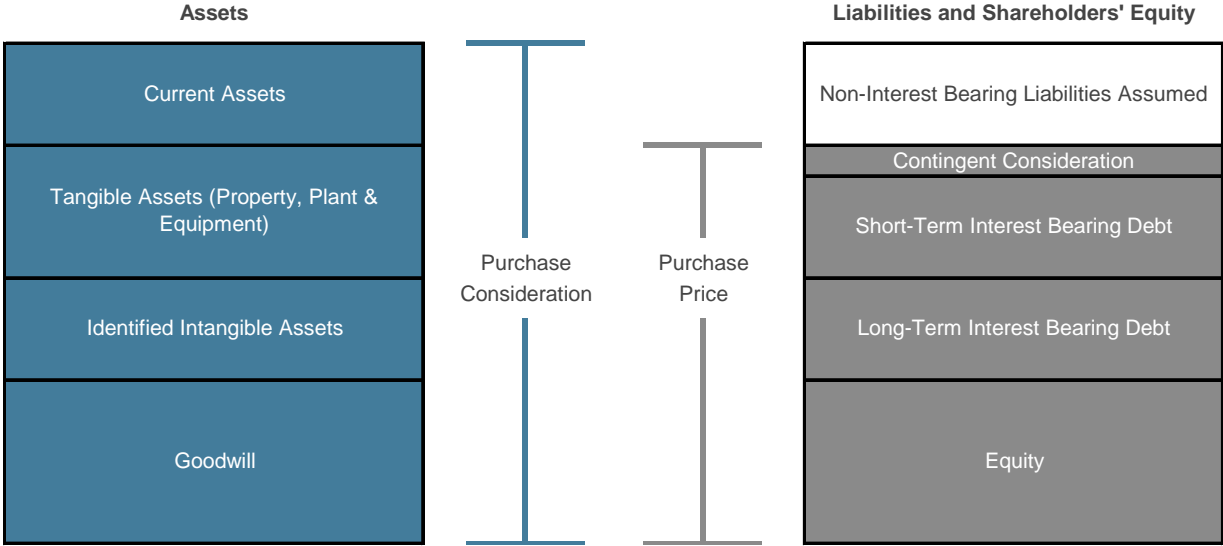
- Transaction closed in 2015;
- Acquirer was a U.S. publicly traded company;
- Ownership percentage sought by acquirer was 50% or greater; and
- Base equity purchase price was disclosed.

The initial sample consisted of 1,525 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 563 transactions, which represented approximately 37% of the initial sample.

These 563 transactions formed the basis of the 2015 Study.

# Screening Criteria and Methodology (cont.)

The primary objective of the 2015 Study was to review the amount of PC allocated to tangible assets, identifiable intangible assets and goodwill. In addition, the 2015 Study marks the fourth year contingent consideration (CC) recorded by acquirers, a component of PC per Generally Accepted Accounting Principles (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 2015 Study, identifiable intangible assets were classified into five categories, including:

- 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); and
- Other (including non-compete agreements, licenses, contracts, and core deposits, among others).

# Screening Criteria and Methodology (cont.)

---

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

- With respect to industry, we classified the 2015 transactions into nine categories:
  - Aerospace, Defense & Government (ADG)
  - Consumer, Food & Retail (CFR)
  - Energy
  - Financial Institutions
  - Healthcare
  - Industrials
  - Infrastructure Services & Materials (ISM)
  - Technology
  - Telecom
- With respect to deal size, we stratified the allocation results across seven categories (PC, \$ in millions):
  - > \$5,000
  - \$1,000–\$5,000
  - \$500–\$1,000
  - \$250–\$500
  - \$100–\$250
  - \$50–\$100
  - < \$50
- With respect to lifing characteristics, we classified the summarized data for intangibles as either definite- or indefinite-lived assets.
  - It should be noted that the indefinite-lived assets exclude IPR&D, which must be recorded as such per ASC 805. IPR&D were considered as definite-lived assets in the 2015 Study.

# Allocation of Intangible Assets and Goodwill

## Summary Allocation Percentages 2015 Study

\$ in millions

	Count	Purchase Consideration		Intangible Assets, % of PC				Goodwill, % of PC			
		Median	Mean	Low	High	Median	Mean	Low	High	Median	Mean
All Industries	563	\$83	\$1,269	0%	190%	31%	34%	0%	149%	38%	38%
Aerospace, Defense & Government	18	177	1,924	11%	53%	33%	33%	9%	70%	43%	41%
Consumer, Food & Retail	80	74	731	2%	190%	32%	38%	1%	149%	38%	41%
Energy	18	243	1,243	2%	100%	21%	24%	1%	51%	27%	25%
Financial Institutions	86	315	993	0%	67%	1%	7%	0%	90%	6%	16%
Healthcare	112	87	2,293	0%	100%	42%	42%	0%	85%	41%	41%
Industrials	67	31	328	5%	100%	32%	37%	0%	83%	36%	37%
Infrastructure Services & Materials	29	236	2,029	2%	76%	26%	28%	8%	57%	32%	31%
Technology	145	37	582	10%	100%	36%	38%	0%	86%	52%	50%
Telecom	8	89	11,418	12%	51%	37%	33%	10%	88%	47%	46%

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

\*\* Includes transactions done by U.S.-listed public company acquirers completed in 2015.



# Contingent Consideration

ASC 805 Requires that CC (i.e., an earnout) be included in PC at its fair value.

- Similar to 2014, approximately 21% of the transactions in the 2015 Study had CC in the purchase price.
- The median fair value of CC in 2015 was \$4 million, while the mean was \$19 million. In 2014, the median fair value was \$3 million, and the mean was \$16 million.
- CC represented 17% and 21% of PC when measured on the median and mean, respectively. This increased from 2014, where CC represented 15% and 20% of PC when measured on the median and mean, respectively.

## Summary of Contingent Consideration 2015 Study

*\$ in millions*

	Count			CC		PC		CC, % of PC			
	CC	All	%	Median	Mean	Median	Mean	Low	High	Median	Mean
All Industries	118	563	21%	\$4	\$19	\$33	\$985	0%	96%	17%	21%
Aerospace, Defense & Government	3	18	17%	3	3	55	55	2%	14%	8%	5%
Consumer, Food & Retail	16	80	20%	3	7	14	136	3%	96%	13%	20%
Energy	2	18	11%	8	8	249	249	2%	3%	2%	2%
Financial Institutions	3	86	3%	7	7	21	28	13%	44%	39%	32%
Healthcare	37	112	33%	10	44	52	2,947	0%	89%	19%	24%
Industrials	16	67	24%	2	6	20	88	2%	52%	12%	17%
Infrastructure Services & Materials	2	29	7%	18	18	214	214	0%	14%	7%	7%
Technology	39	145	27%	3	7	23	63	1%	77%	19%	22%

- Transaction-related contingent compensation and retention bonuses are not included in PC. These employee compensation expense items are generally accounted for under ASC 718.

## **2015 Observations and Results**

---

# Transaction Volume

---

- The number of transactions with sufficient disclosures for analysis increased 5% year-over-year, from 534 in 2014 to 563 in 2015.
- Our initial screening generated a population of 1,525 transactions. Of these deals, 962 transactions were not considered for the following 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 21% year-over-year, from 1,265 in 2014 to 1,525 in 2015.
- The number of transactions with sufficient disclosures decreased to 37% in 2015 from 42% in 2014.

# Industry Results

---

- Five of the nine industries experienced year-over-year increases in the number of transactions available for the 2015 Study.
  - Healthcare recorded the largest increase in transaction count, up by 56% or 40 transactions from 2014, while Infrastructure Services & Materials had the largest percentage increase, up 61% or 11 transactions from the previous year.
  - Telecom and ADG saw increases of 60% and 50%, respectively.
  - On a percentage basis, CFR and Energy recorded decreases of 16% and 25%, respectively.
- When measured across all industries, the median percentage of PC allocated to identifiable intangible assets increased slightly, from 28% in 2014 to 31% in 2015. Similar to the overall results, seven out of nine of the industries showed only a small change (i.e., 5% or less) in the median amount of PC allocated to identifiable intangible assets compared to 2014.
  - Telecom and ADG recorded the largest percentage increases of 33% and 10%, respectively. However, Telecom had a small number of transactions, potentially making a comparison not meaningful.
  - Healthcare recorded the largest percentage decrease of 1%.
- The median percentage of PC allocated to goodwill decreased slightly to 38% in 2015 from 39% in 2014.
  - The percentage of PC allocated to goodwill increased when measured on a weighted-average basis to 33% in 2015 from 31% in 2014.
  - No single industry was a driver in the overall increase to goodwill allocation. Telecom, Infrastructure Services & Materials, and Consumer, Food and Retail represented the highest percentage increases in goodwill allocation at 16%, 8%, and 5%, respectively, year-over-year.

# Industry Results (cont.)

## Summary Allocation Percentages 2015 Study

\$ in millions

	Count	Purchase Consideration		Intangible Assets, % of PC				Goodwill, % of PC			
		Median	Mean	Low	High	Median	Mean	Low	High	Median	Mean
All Industries	563	\$83	\$1,269	0%	190%	31%	34%	0%	149%	38%	38%
Aerospace, Defense & Government	18	177	1,924	11%	53%	33%	33%	9%	70%	43%	41%
Consumer, Food & Retail	80	74	731	2%	190%	32%	38%	1%	149%	38%	41%
Energy	18	243	1,243	2%	100%	21%	24%	1%	51%	27%	25%
Financial Institutions	86	315	993	0%	67%	1%	7%	0%	90%	6%	16%
Healthcare	112	87	2,293	0%	100%	42%	42%	0%	85%	41%	41%
Industrials	67	31	328	5%	100%	32%	37%	0%	83%	36%	37%
Infrastructure Services & Materials	29	236	2,029	2%	76%	26%	28%	8%	57%	32%	31%
Technology	145	37	582	10%	100%	36%	38%	0%	86%	52%	50%
Telecom	8	89	11,418	12%	51%	37%	33%	10%	88%	47%	46%

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

\*\* Includes transactions done by U.S.-listed public company acquirers completed in 2015.

# Industry Results (cont.)

## Summary Allocation Percentages by Industry 2015 vs. 2014

\$ in millions

	Count			Median Results								
				Purchase Consideration			Intangible Assets, % of PC			Goodwill, % of PC		
	2015	2014	% Chg.	2015	2014	% Chg.	2015	2014	BPS Chg.	2015	2014	BPS Chg.
All Industries	563	534	5%	\$83	\$73	14%	31%	28%	3%	38%	39%	-1%
Aerospace, Defense & Government	18	12	50%	177	47	273%	33%	23%	10%	43%	52%	-9%
Consumer, Food & Retail	80	95	-16%	74	84	-12%	32%	27%	5%	38%	33%	5%
Energy	18	24	-25%	243	74	227%	21%	20%	1%	27%	28%	-1%
Financial Institutions	86	89	-3%	315	302	4%	1%	1%	0%	6%	6%	0%
Healthcare	112	72	56%	87	70	25%	42%	43%	-1%	41%	41%	1%
Industrials	67	65	3%	31	58	-46%	32%	32%	0%	36%	40%	-5%
Infrastructure Services & Materials	29	18	61%	236	267	-12%	26%	21%	5%	32%	24%	8%
Technology	145	154	-6%	37	33	12%	36%	33%	3%	52%	54%	-2%
Telecom	8	5	60%	89	121	-26%	37%	4%	33%	47%	30%	16%

# Transaction Size

---

- Approximately 65% of the transactions in the 2015 Study had PC below \$250 million, which is a decrease when compared with 2014.
- Smaller transactions generally recorded lower allocations to intangible assets and higher allocations to goodwill in 2015.
  - For transactions with PC below \$250 million, intangible assets and goodwill averaged 34% and 37% of PC, respectively. In 2014, the corresponding percentages were 26% and 41%, respectively.
  - For transactions with PC above \$250 million, intangible assets and goodwill averaged 29% and 32% of PC, respectively. In 2014, the corresponding percentages were 21% and 32%, respectively.
- The average transaction size increased from \$601 million in 2014 to \$1,269 million in 2015, and the median transaction size increased from \$73 million to \$83 million.

# Transaction Size (cont.)

## Summary Allocation Percentages by Size 2015 Study

\$ in millions

	Count	Median Results									
		PC		Intangible Assets, % of PC				Goodwill, % of PC			
		Median	Mean	Low	High	Median	Mean	Low	High	Median	Mean
All Transactions	563	\$83	\$1,269	0%	190%	31%	34%	0%	149%	38%	38%
PC > \$5,000	28	\$12,192	\$18,108	1%	84%	36%	36%	8%	55%	35%	32%
\$1,000 < PC < \$5,000	64	1,724	2,080	0%	82%	24%	24%	0%	84%	32%	33%
\$500 < PC < \$1,000	51	694	710	0%	99%	29%	27%	0%	77%	27%	28%
\$250 < PC < \$500	54	351	358	0%	89%	28%	28%	0%	86%	38%	34%
\$100 < PC < \$250	80	147	158	0%	98%	26%	25%	0%	89%	36%	35%
\$50 < PC < \$100	49	70	69	1%	99%	32%	34%	0%	79%	41%	38%
PC < \$50	237	11	15	0%	190%	37%	41%	0%	149%	42%	40%
Below \$250	65%					31%	34%			40%	37%
Above \$250	35%					29%	29%			33%	32%



# Transaction Size (cont.)

## Summary Allocation Percentages by Size 2015 vs. 2014

*\$ in millions*

	Count			Median Goodwill, % of PC		
	2015	2014	% Chg.	2015	2014	% Chg.
All Transactions	563	534	5%	38%	39%	-3%
PC > \$5,000	28	13	115%	35%	33%	7%
\$1,000 < PC < \$5,000	64	45	42%	32%	32%	1%
\$500 < PC < \$1,000	51	42	21%	27%	36%	-26%
\$250 < PC < \$500	54	58	-7%	38%	41%	-6%
\$100 < PC < \$250	80	81	-1%	36%	43%	-15%
\$50 < PC < \$100	49	73	-33%	41%	46%	-11%
PC < \$50	237	222	7%	42%	42%	0%

# Indefinite-Lived Intangible Assets

- Indefinite-lived intangible assets accounted for 5% of the total intangible asset value in 2015, as compared to 13% in 2014.
  - The following is a noteworthy transaction with a relatively large portion of indefinite-lived intangible assets:
    - Dollar Tree, Inc.'s acquisition of Family Dollar Stores Inc. (\$3.1 billion of the PC of \$8.8 billion)
    - The J.M. Smucker Company's acquisition of Blue Acquisition Group (\$1.5 billion of the PC of \$5.9 billion)
- Trademarks and trade names were the most common intangible assets to be considered as indefinite-lived.
  - In 2015, the number of transactions in the sample that ascribed PC to trademarks and trade names increased to 50%, as compared to 45% in 2014.
  - Acquirers considered the purchased trademarks and trade names to be indefinite-lived assets slightly more frequently in 2015 compared to the prior year (23% in 2015 vs. 19% in 2014). It should be noted that the percentage of trademarks and considered as indefinite-lived assets in 2015 is greater than the amount recorded in 2013 on a count basis but the same on a percentage basis.
- Other intangible assets classified as indefinite-lived included (but are not limited to) license agreements, franchise licenses, artistic-related assets, and capitalized data.

## Trademark and Trade Name Lifting Classification 2013 - 2015

Trademark and Trade Names	2015		2014		2013	
	Count	% of Total	Count	% of Total	Count	% of Total
All Indefinite-Lived	65	23%	46	19%	47	23%
All Definite-Lived	216	77%	195	81%	157	77%
Mix of Definite- and Indefinite-Lived	0	0%	0	0%	0	0%
Total	281	100%	241	100%	204	100%

# Frequently Identified Intangible Assets

- Developed technology, IPR&D, customer-related assets, as well as trademarks and trade names were the most commonly identified intangible assets. Other intangible assets typically included, among others, non-compete agreements, licenses, permits, and other contracts or agreements.
- All four categories recorded increased in the frequency of identification from 2014 to 2015.
- With respect to the amount of PC allocated to each of these categories from 2014 to 2015, developed technology, IPR&D, and customer-related assets increased, while trademarks and trade names remained constant.

## Frequently Identified Intangible Assets 2013 - 2015

	Count, % of Sample			Median % of PC		
	2015	2014	2013	2015	2014	2013
Developed Technology	44%	40%	49%	12%	9%	14%
<i>Change</i>	5%	-9%	5%	3%	-5%	0%
IPR&D	10%	7%	11%	15%	6%	15%
<i>Change</i>	2%	-3%	-3%	9%	-8%	8%
Customer-related Assets	69%	59%	61%	18%	14%	11%
<i>Change</i>	11%	-3%	4%	4%	4%	-3%
Trademarks and Trade Names	50%	45%	48%	4%	4%	3%
<i>Change</i>	5%	-3%	4%	0%	1%	0%

# Developed Technology

- In the 2015 Study, 250 transactions (44%) allocated PC to developed technology.
- The median allocation of PC to developed technology was 12%, while the mean was 18%.
- The following are observations for PC allocated to developed technology:
- The Technology industry comprises the greatest number of observations (125 with a median of 17%), up from last year of 117 observations with a median of 12%.
  - The Telecom sector's PC allocated to developed technology increased from a median of 0% in 2014 to 12% in 2015. This increase is mainly due to the limited number of transactions in the Telecom sector with developed technology in 2014.
  - Technology had the highest percentage of PC allocated to developed technology, with a median of 17%.

## Summary of PC Allocated to Developed Technology 2015 Study

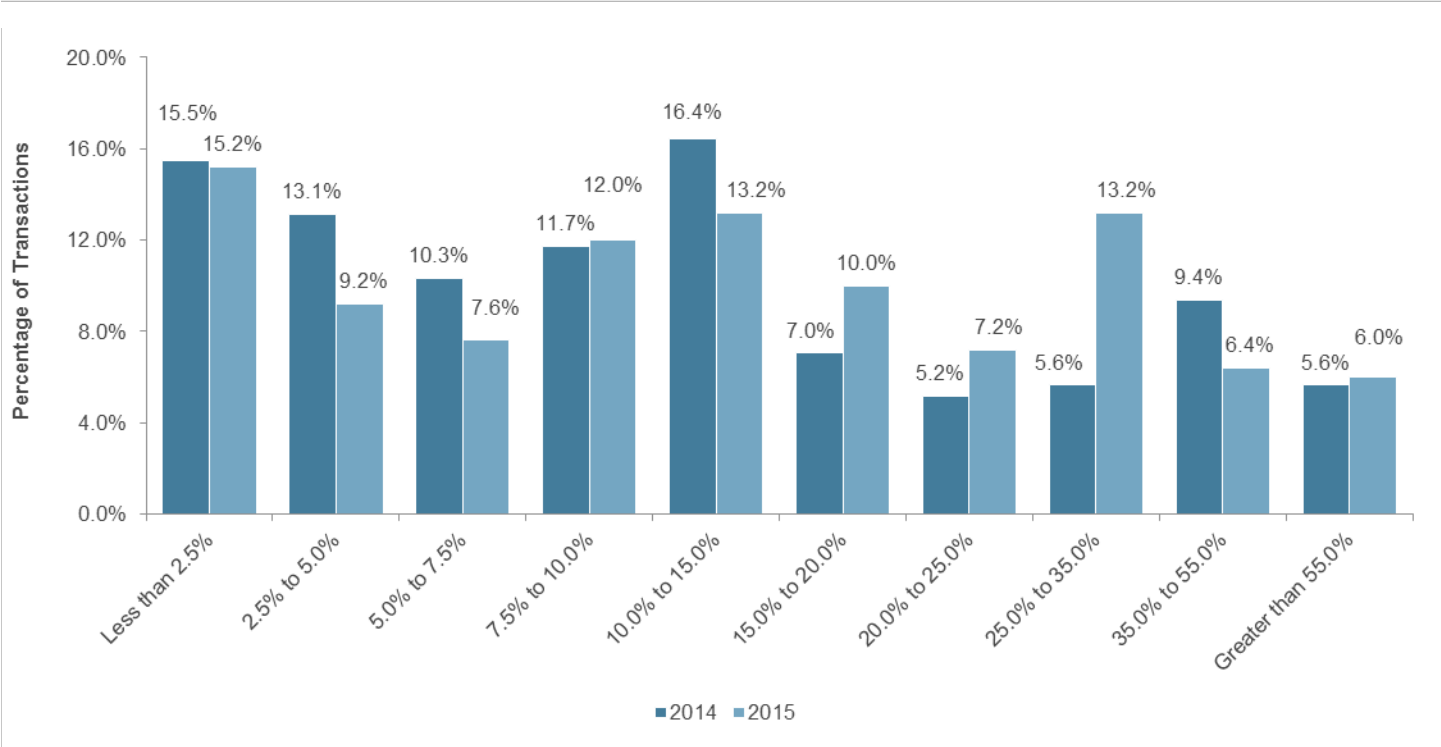
\$ in millions

	Count			PC		Developed Technology, % of PC				Goodwill, % of PC			
	Developed	All	%	Median	Mean	Low	High	Median	Mean	Low	High	Median	Mean
All Industries	250	563	44%	\$72	\$1,047	0%	100%	12%	18%	0%	86%	46%	44%
Aerospace, Defense & Government	11	18	61%	303	1,957	0%	18%	8%	9%	9%	63%	38%	38%
Consumer, Food & Retail	18	80	23%	50	717	0%	31%	9%	11%	20%	78%	36%	44%
Energy	1	18	6%	192	192	2%	2%	2%	2%	36%	36%	36%	36%
Financial Institutions	8	86	9%	73	987	2%	47%	5%	11%	12%	84%	48%	45%
Healthcare	47	112	42%	112	1,717	0%	70%	12%	21%	3%	77%	37%	39%
Industrials	20	67	30%	89	326	0%	77%	4%	19%	2%	65%	28%	33%
Infrastructure Services & Materials	16	29	55%	302	3,456	0%	9%	6%	5%	19%	49%	34%	34%
Technology	125	145	86%	41	611	0%	100%	17%	21%	0%	86%	52%	50%
Telecom	4	8	50%	107	109	8%	17%	12%	12%	10%	56%	44%	39%

# Developed Technology (cont.)

- As illustrated below, the percentage of PC allocated to developed technology was distributed more heavily on the lower percentage intervals. Of the deals that allocated PC to developed technology, 57% of deals attributed 15% or less.

**Distribution of PC Allocated to Developed Technology**  
*2015 Study*



# In-Process Research & Development

- In the 2015 Study, 54 transactions (10%) allocated PC to IPR&D.
- The median allocation of PC to IPR&D was 15%, while the mean was 29%. The significant differential between the median and mean is primarily attributable to the small number of transactions where allocations of PC to IPR&D were high.

## Summary of PC Allocated to IPR&D 2015 Study

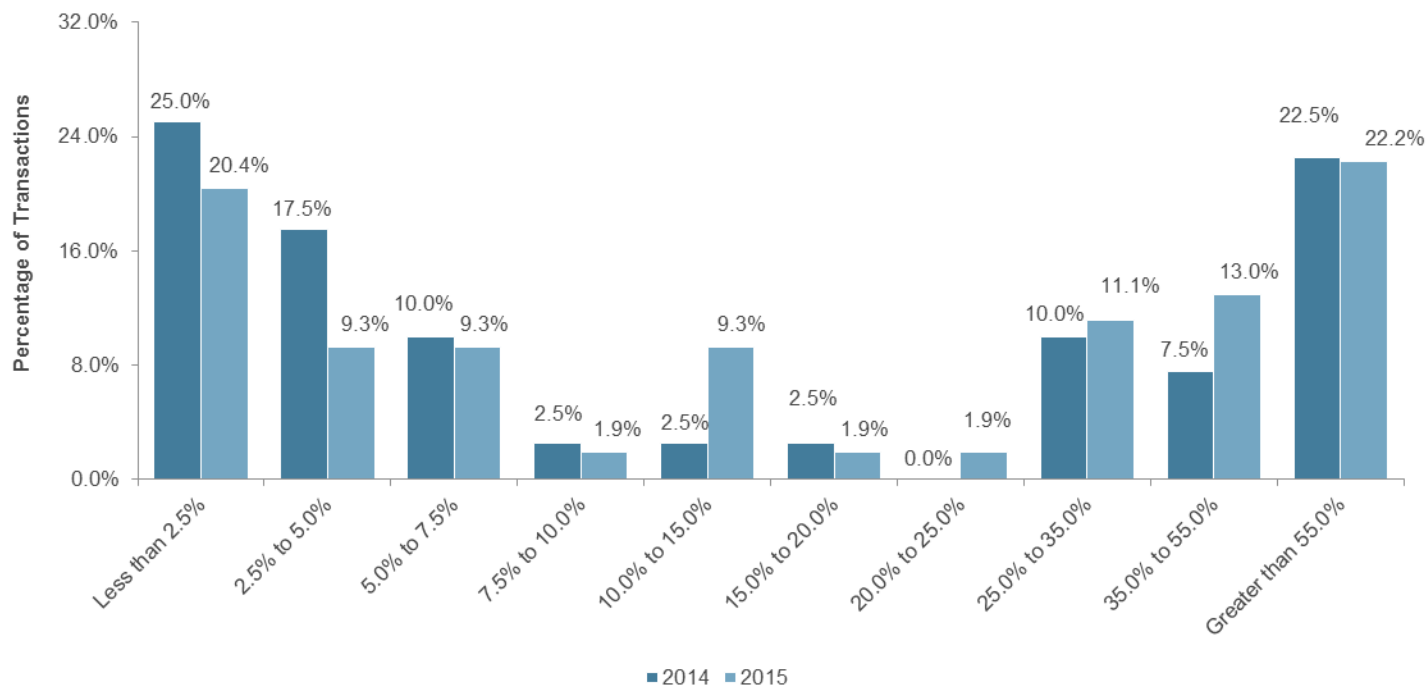
\$ in millions

	Count			PC		IPR&D, % of PC				Goodwill, % of PC			
	IPR&D	All	%	Median	Mean	Low	High	Median	Mean	Low	High	Median	Mean
All Industries	54	563	10%	\$554	\$5,149	0%	99%	15%	29%	0%	68%	31%	31%
Aerospace, Defense & Government	1	18	6%	27	27	15%	15%	15%	15%	9%	9%	9%	9%
Consumer, Food & Retail	0	80	0%	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Energy	0	18	0%	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Financial Institutions	1	86	1%	6,699	6,699	2%	2%	2%	2%	48%	48%	48%	48%
Healthcare	33	112	29%	553	6,597	0%	99%	40%	41%	0%	68%	30%	30%
Industrials	1	67	1%	235	235	0%	0%	0%	0%	26%	26%	26%	26%
Infrastructure Services & Materials	1	29	3%	1,619	1,619	0%	0%	0%	0%	36%	36%	36%	36%
Technology	16	145	11%	707	3,234	1%	78%	4%	10%	5%	66%	35%	33%
Telecom	1	8	13%	37	37	5%	5%	5%	5%	10%	10%	10%	10%

# In-Process Research & Development (cont.)

- As illustrated below, of the deals that allocated PC to IPR&D, 27 deals (50%) allocated 15% or less, while 25 deals (46%) allocated more than 25%.

**Distribution of PC Allocated to IPR&D**  
*2015 Study*



# Trademarks and Trade Names

- In the 2015 Study, 281 transactions (50%) allocated PC to trademarks and trade names.
- The median allocation of PC to trademarks and trade names was 4%, while the mean was 8%.

## Summary of PC Allocated to Trademarks and Trade Names 2015 Study

\$ in millions

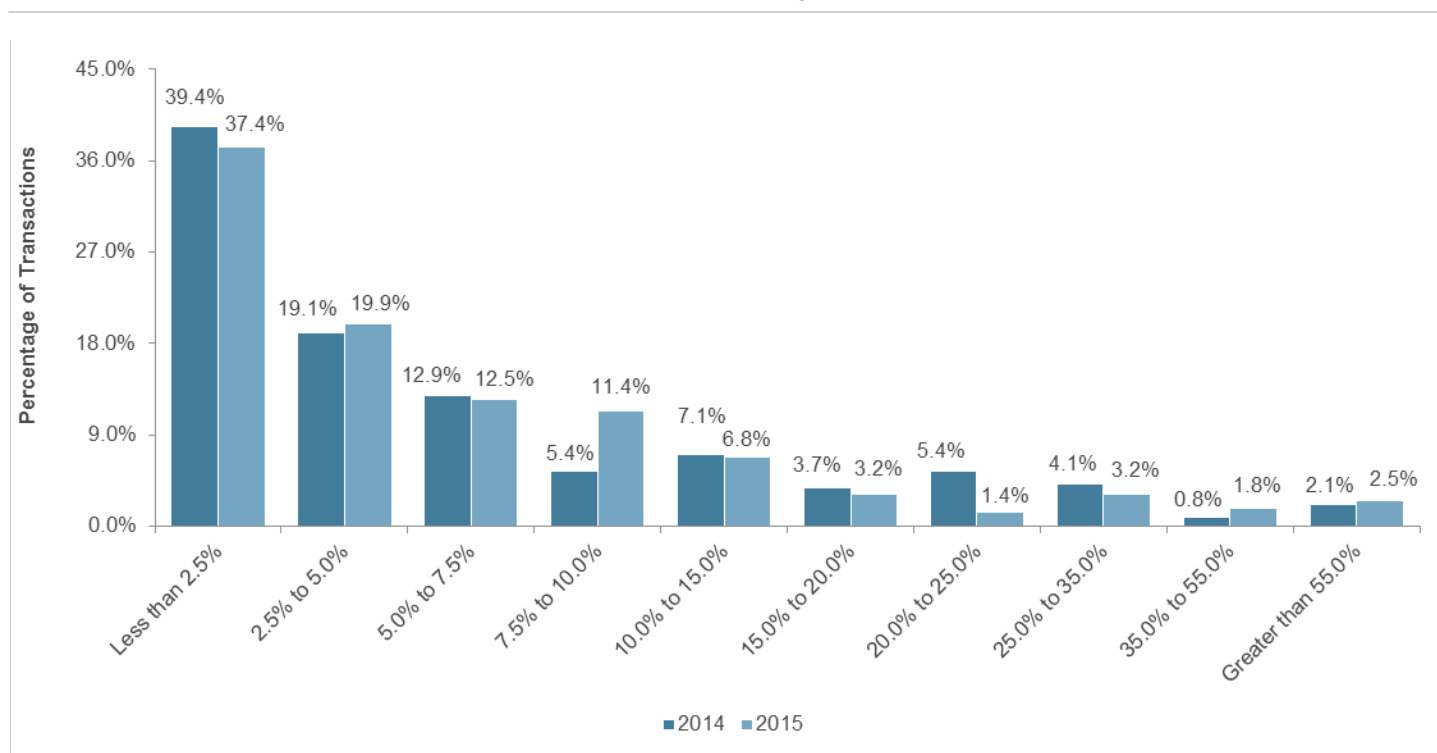
	Count			PC		Trademarks and Trade Names, % of PC				Goodwill, % of PC			
	Trademarks and Trade Names	All	%	Median	Mean	Low	High	Median	Mean	Low	High	Median	Mean
All Industries	281	563	50%	\$107	\$1,828	0%	98%	4%	8%	0%	149%	43%	42%
Aerospace, Defense & Government	10	18	56%	\$352	\$2,540	0%	7%	1%	2%	9%	63%	45%	39%
Consumer, Food & Retail	48	80	60%	174	1,107	0%	98%	14%	23%	1%	149%	38%	41%
Energy	5	18	28%	21	212	1%	10%	1%	3%	7%	47%	36%	30%
Financial Institutions	8	86	9%	506	2,820	0%	43%	1%	7%	4%	68%	30%	30%
Healthcare	50	112	45%	104	3,285	0%	28%	4%	6%	2%	78%	42%	41%
Industrials	45	67	67%	47	464	0%	23%	6%	7%	2%	82%	37%	38%
Infrastructure Services & Materials	23	29	79%	253	2,446	0%	31%	3%	5%	8%	57%	34%	34%
Technology	86	145	59%	72	917	0%	69%	2%	4%	0%	86%	55%	51%
Telecom	6	8	75%	89	15,188	0%	13%	5%	6%	10%	57%	35%	37%



# Trademarks and Trade Names (cont.)

- As illustrated below, of the deals that allocated PC to trademarks and trade names, 161 deals (57%) allocated 5% or less.

**Distribution of PC Allocated to Trademarks and Trade Names**  
*2015 Study*



# Customer-Related Intangible Assets

- In the 2015 Study, 391 transactions (69%) allocated PC to customer-related intangibles.
- The median allocation of PC to customer-related intangibles was 18%, while the mean was 20%.

## Summary of PC Allocated to Customer-Related Intangible Assets 2015 Study

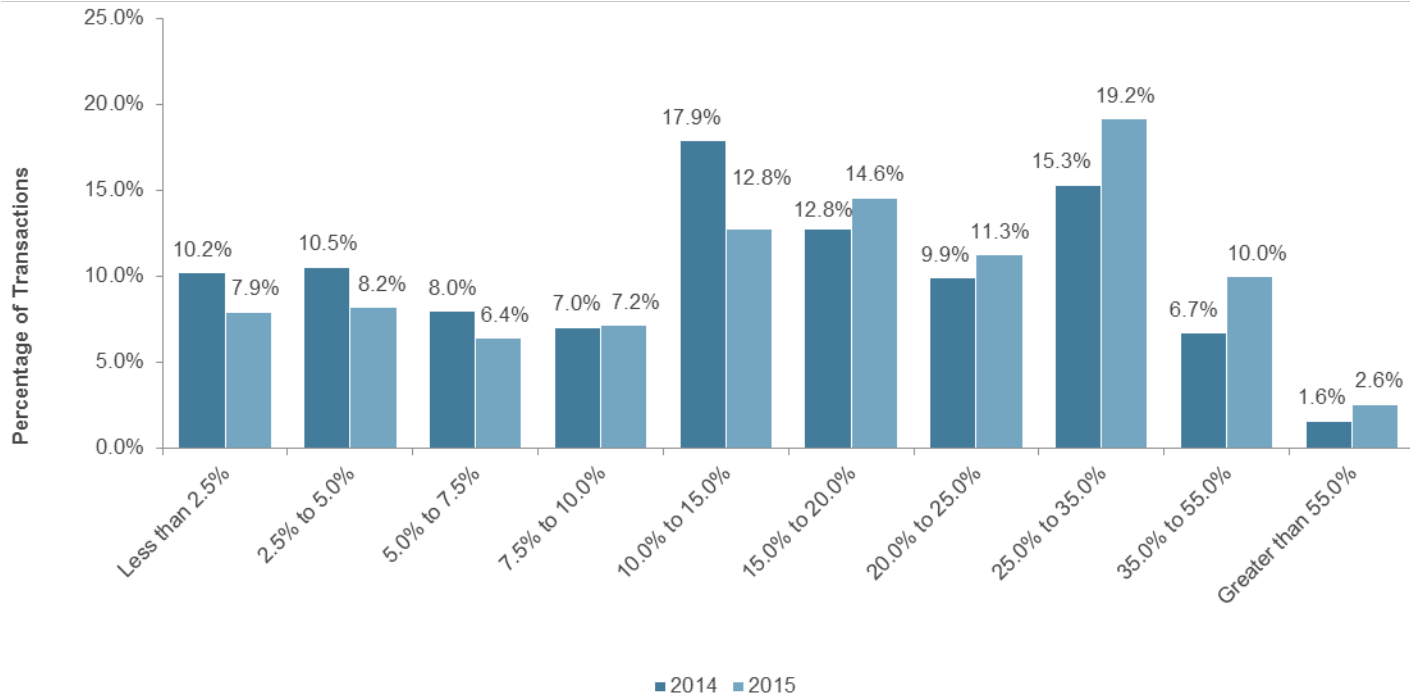
\$ in millions

	Count			PC		Customer-Related Assets, % of PC				Goodwill, % of PC			
	Customer-Related Assets	All	%	Median	Mean	Low	High	Median	Mean	Low	High	Median	Mean
All Industries	391	563	69%	\$67	\$1,381	0%	152%	18%	20%	0%	149%	42%	42%
Aerospace, Defense & Government	18	18	100%	177	1,924	5%	41%	23%	23%	9%	70%	43%	41%
Consumer, Food & Retail	60	80	75%	51	747	0%	152%	15%	20%	1%	149%	36%	40%
Energy	16	18	89%	243	1,346	1%	58%	16%	19%	1%	51%	27%	27%
Financial Institutions	20	86	23%	68	1,288	0%	54%	8%	15%	1%	90%	45%	38%
Healthcare	55	112	49%	102	2,950	1%	55%	20%	22%	3%	74%	42%	42%
Industrials	64	67	96%	31	342	1%	80%	22%	22%	2%	83%	36%	37%
Infrastructure Services & Materials	28	29	97%	221	2,078	2%	65%	19%	22%	8%	49%	31%	30%
Technology	122	145	84%	53	651	0%	91%	15%	18%	0%	86%	52%	51%
Telecom	8	8	100%	89	11,418	9%	13%	22%	22%	10%	88%	47%	46%

# Customer-Related Intangible Assets (cont.)

- As illustrated below, of the deals that allocated PC to customer-related intangibles, 275 deals (70%) allocated 10% or greater.

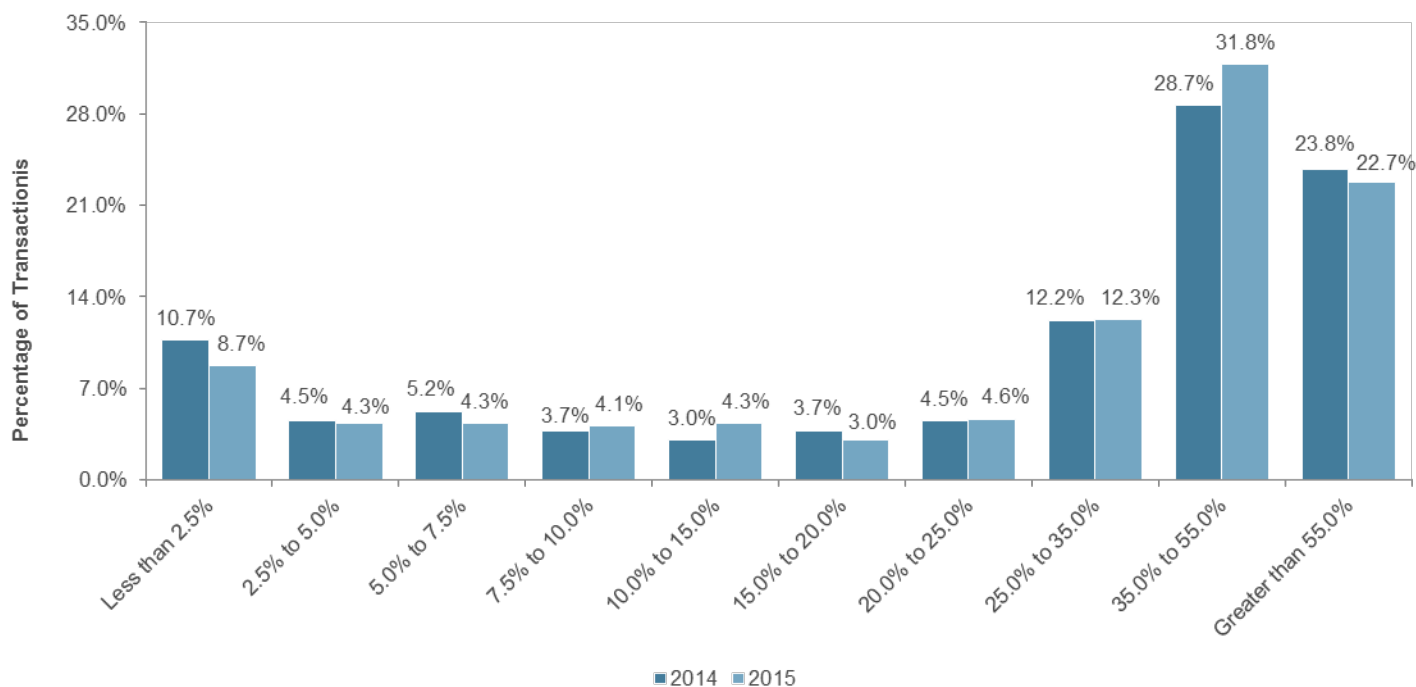
**Distribution of PC Allocated to Customer-Related Intangible Assets**  
*2015 Study*



# Goodwill

- In the 2015 Study, 537 transactions (95%) allocated PC to goodwill, 26 transactions recorded no PC to goodwill. Transactions with negative goodwill, i.e., bargain purchases were excluded from the 2015 study. Based on our search criteria, there were five bargain purchases in 2015.
- The industry segmentation of the 26 transactions with zero goodwill is as follows: Healthcare, six; Technology, five; Industrials, four; CFR, four; Financial Institutions, four; and Energy, three.
- The median allocation of PC to goodwill was 38%, while the mean was also 38%.
- As illustrated below, 376 deals (67%) allocated 25% or greater of PC to goodwill.

**Distribution of PC Allocated to Goodwill**  
2015 Study



# Appendices

---

# Appendices

---

2014 Summary Results

# Developed Technology

- In the 2014 Study, 213 transactions (40%) allocated PC to developed technology.
- The median allocation of PC to developed technology was 10%, while the mean was 17%.
- The following are observations for PC allocated to developed technology:
  - The Technology industry comprises the greatest number of observations (117 with a median of 12%), down from 93 observations with a median of 16% in 2013.
  - The Energy sector's PC allocated to developed technology decreased from a median of 62% in 2013 to 8% in 2014. This decrease is mainly due to the limited number of transactions in the Energy sector with developed technology.
  - The Healthcare industry had the highest percentage of PC allocated to developed technology, with a median of 13%.

## Summary of PC Allocated to Developed Technology 2014 Study

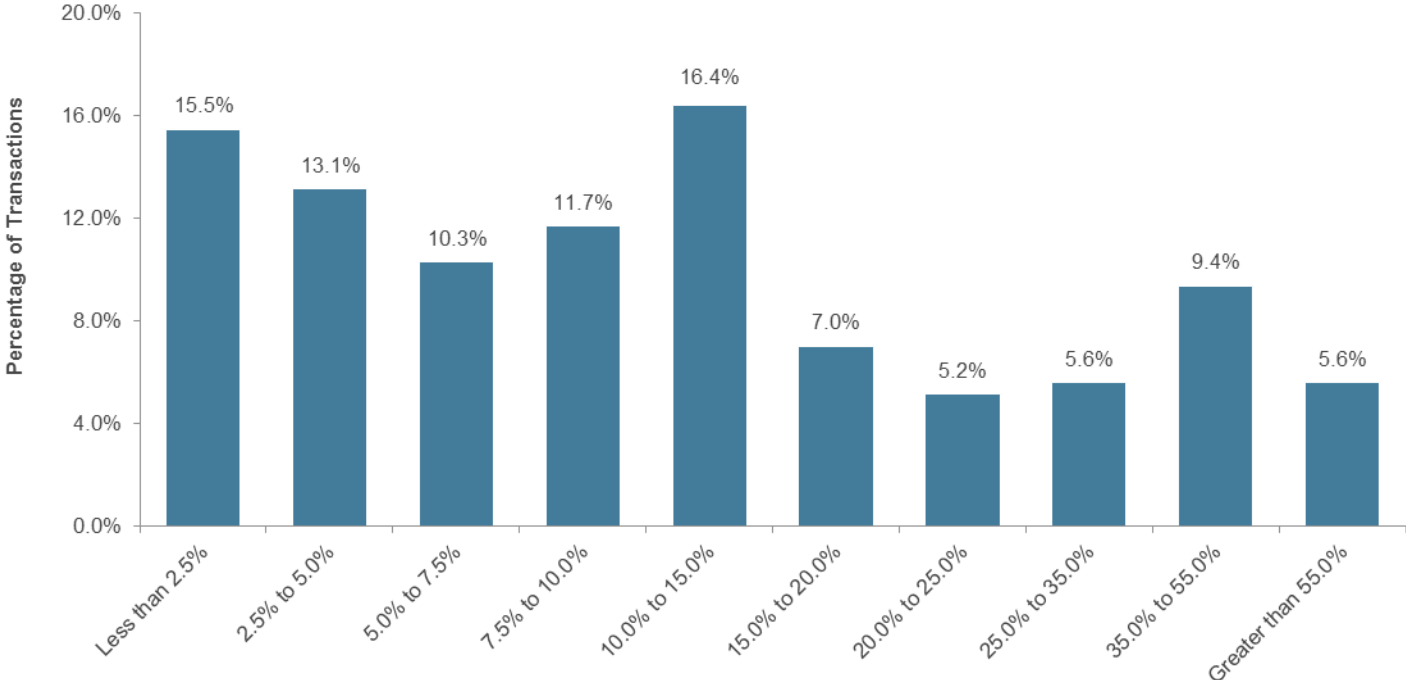
\$ in millions

	Count			PC		Developed Technology, % of PC				Goodwill, % of PC			
	Developed	All	%	Median	Mean	Low	High	Median	Mean	Low	High	Median	Mean
All Industries	213	534	40%	\$59	\$642	0%	100%	10%	17%	2%	92%	50%	49%
Aerospace, Defense & Government	5	12	42%	22	155	4%	12%	6%	7%	35%	75%	47%	52%
Consumer, Food & Retail	24	95	25%	288	617	0%	89%	6%	12%	18%	76%	46%	45%
Energy	2	24	8%	29	29	5%	12%	8%	8%	50%	53%	52%	52%
Financial Institutions	5	89	6%	66	973	0%	83%	3%	18%	17%	62%	36%	36%
Healthcare	34	72	47%	125	2,123	0%	76%	13%	23%	19%	82%	46%	46%
Industrials	20	65	31%	175	468	0%	30%	4%	5%	21%	88%	41%	43%
Infrastructure Services & Materials	5	18	28%	621	1,393	1%	13%	8%	7%	15%	66%	43%	42%
Technology	117	154	76%	40	236	0%	100%	12%	20%	2%	91%	53%	52%
Telecom	1	5	20%	121	121	0%	0%	0%	0%	92%	92%	92%	92%

# Developed Technology (cont.)

- As illustrated below, the percentage of PC allocated to developed technology was widely distributed evenly across the intervals. Of the deals that allocated PC to developed technology, 67% of deals attributed 15% or less.

**Distribution of PC Allocated to Developed Technology**  
*2014 Study*





# In-Process Research & Development

- In the 2014 Study, 40 transactions (7%) allocated PC to IPR&D.
- The median allocation of PC to IPR&D was 6%, while the mean was 26%. The large difference between the median and mean is primarily attributable to the small number of transactions in which allocations of PC to IPR&D were high.

## Summary of PC Allocated to IPR&D 2014 Study

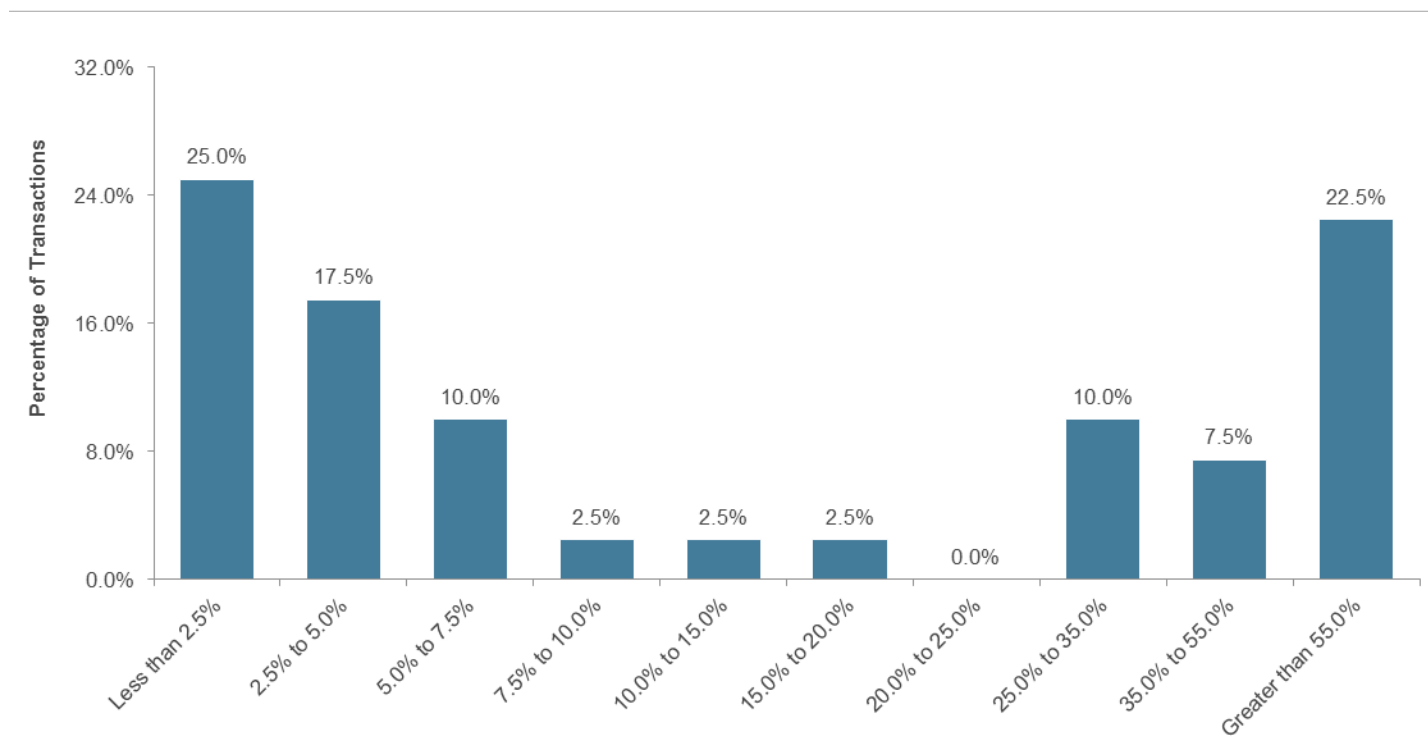
\$ in millions

	Count			PC		IPR&D, % of PC				Goodwill, % of PC			
	IPR&D	All	%	Median	Mean	Low	High	Median	Mean	Low	High	Median	Mean
All Industries	40	534	7%	\$149	\$1,849	0%	100%	6%	26%	2%	81%	37%	37%
Aerospace, Defense & Government	0	12	0%	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Consumer, Food & Retail	0	95	0%	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Energy	1	24	4%	59	59	27%	27%	27%	27%	59%	59%	59%	59%
Financial Institutions	0	89	0%	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Healthcare	19	72	26%	184	3,487	0%	94%	34%	36%	2%	81%	30%	32%
Industrials	1	65	2%	31	31	2%	2%	2%	2%	42%	42%	42%	42%
Infrastructure Services & Materials	0	18	0%	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Technology	19	154	12%	150	401	0%	100%	5%	18%	2%	75%	43%	41%
Telecom	0	5	0%	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

# In-Process Research & Development (cont.)

- As illustrated below, of the deals that allocated PC to IPR&D, 23 deals (58%) allocated 15% or less, while 16 deals (40%) allocated more than 25%.

**Distribution of PC Allocated to IPR&D**  
*2014 Study*



# Trademarks and Trade Names

- In the 2014 Study, 241 transactions (45%) allocated PC to trademarks and trade names.
- The median allocation of PC to trademarks and trade names was 4%, while the mean was 8%.

## Summary of PC Allocated to Trademarks and Trade Names 2014 Study

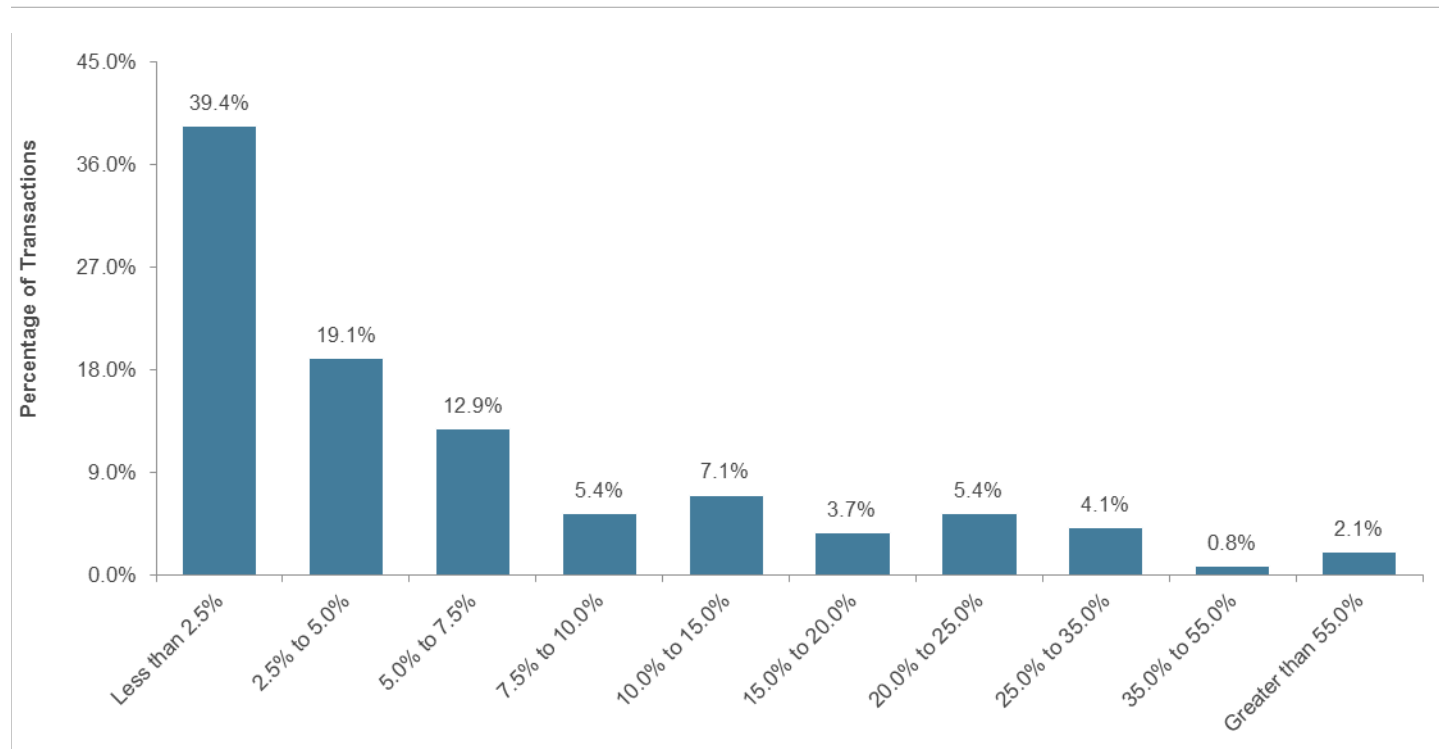
\$ in millions

	Count			PC		Trademarks and Trade Names, % of PC				Goodwill, % of PC			
	Trademarks and Trade Names	All	%	Median	Mean	Low	High	Median	Mean	Low	High	Median	Mean
All Industries	241	534	45%	\$67	\$591	0%	100%	4%	8%	0%	94%	43%	43%
Aerospace, Defense & Government	5	12	42%	\$65	\$620	2%	9%	2%	4%	10%	58%	47%	42%
Consumer, Food & Retail	51	95	54%	173	955	0%	100%	9%	18%	1%	76%	32%	31%
Energy	6	24	25%	22	57	2%	13%	5%	6%	0%	70%	28%	31%
Financial Institutions	8	89	9%	36	618	0%	5%	3%	3%	17%	69%	53%	50%
Healthcare	33	72	46%	98	1,100	0%	34%	3%	7%	9%	70%	44%	44%
Industrials	41	65	63%	60	424	0%	32%	5%	7%	8%	88%	40%	39%
Infrastructure Services & Materials	9	18	50%	313	724	0%	18%	4%	5%	4%	66%	23%	31%
Technology	86	154	56%	43	286	0%	67%	2%	5%	2%	94%	52%	52%
Telecom	2	5	40%	267	267	0%	7%	3%	3%	13%	30%	22%	22%

# Trademarks and Trade Names (cont.)

- As illustrated below, of the deals that allocated PC to trademarks and trade names, 141 deals (59%) allocated 5% or less.

**Distribution of PC Allocated to Trademarks and Trade Names**  
*2014 Study*



# Customer-Related Intangible Assets

- In the 2014 Study, 313 transactions (59%) allocated PC to customer-related intangibles.
- The median allocation of PC to customer-related intangibles was 14%, while the mean was 17%.

## Summary of PC Allocated to Customer-Related Intangible Assets 2014 Study

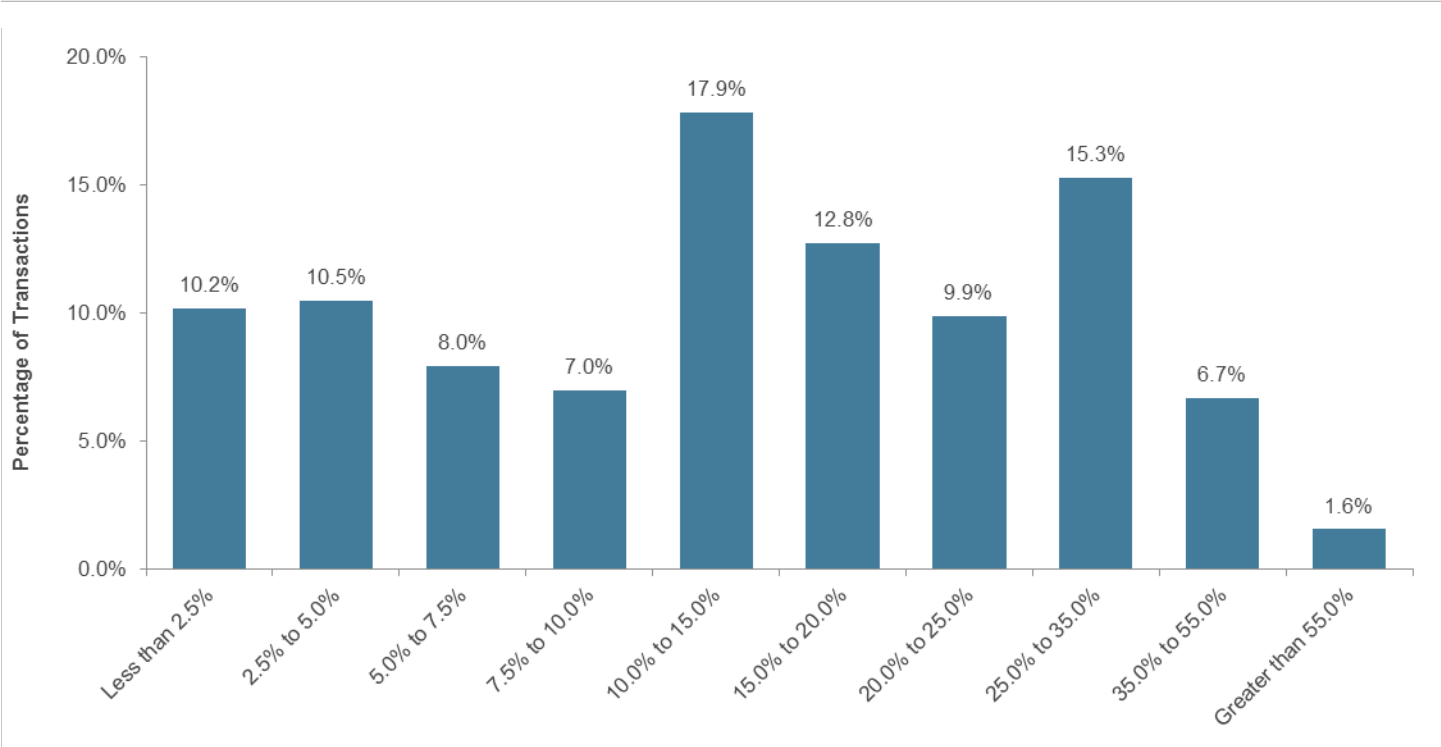
\$ in millions

	Count			PC		Customer-Related Assets, % of PC				Goodwill, % of PC			
	Customer-Related Assets	All	%	Median	Mean	Low	High	Median	Mean	Low	High	Median	Mean
All Industries	313	534	59%	\$67	\$685	0%	89%	14%	17%	0%	96%	45%	43%
Aerospace, Defense & Government	11	12	92%	44	104	9%	50%	18%	21%	3%	78%	52%	52%
Consumer, Food & Retail	60	95	63%	139	756	1%	89%	12%	15%	4%	96%	34%	36%
Energy	15	24	63%	90	901	1%	49%	17%	21%	0%	53%	18%	25%
Financial Institutions	14	89	16%	75	1,336	0%	61%	12%	18%	7%	69%	45%	40%
Healthcare	38	72	53%	78	1,857	0%	36%	17%	16%	9%	82%	47%	46%
Industrials	55	65	85%	58	400	1%	66%	22%	22%	8%	88%	41%	41%
Infrastructure Services & Materials	12	18	67%	298	978	0%	25%	7%	10%	1%	66%	29%	31%
Technology	105	154	68%	44	265	0%	51%	13%	15%	2%	91%	54%	52%
Telecom	3	5	60%	532	1,172	3%	7%	20%	24%	13%	30%	29%	24%

# Customer-Related Intangible Assets (cont.)

■ As illustrated below, of the deals that allocated PC to customer-related intangibles, 201 deals (64%) allocated 10% or greater.

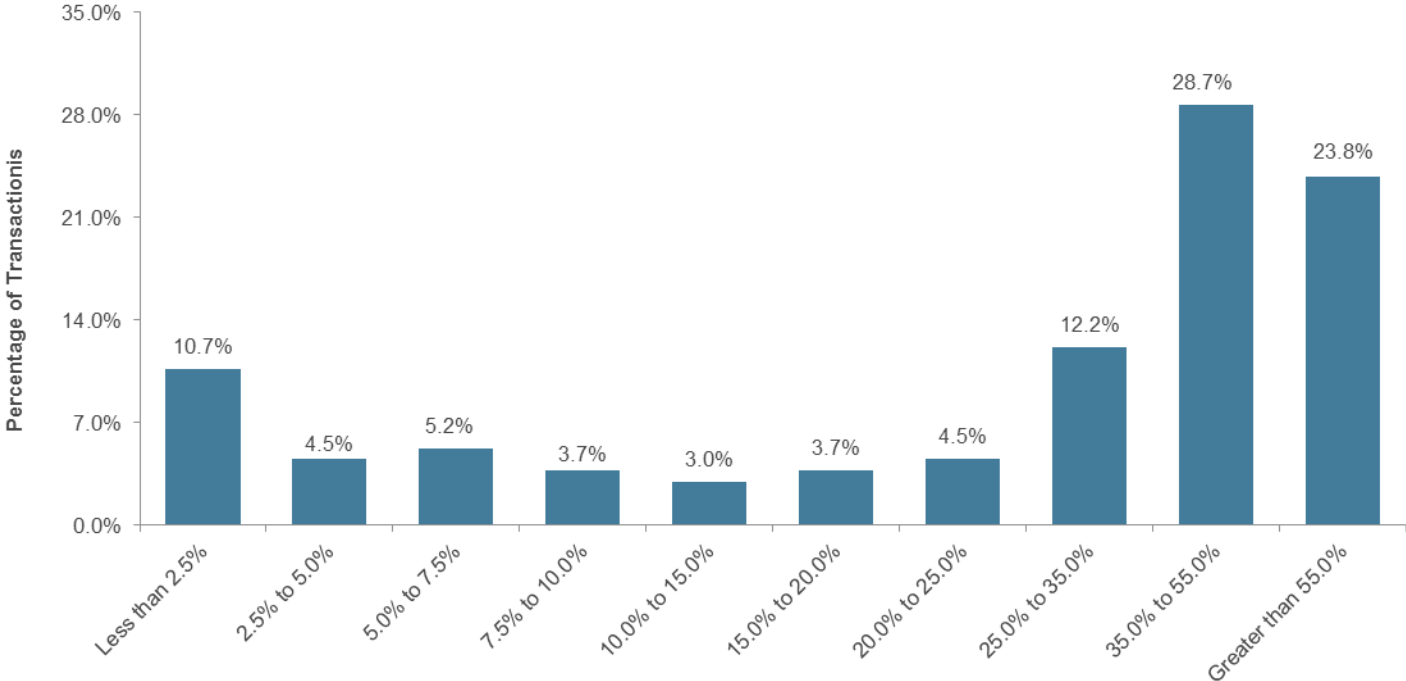
**Distribution of PC Allocated to Customer-Related Intangible Assets**  
*2014 Study*



# Goodwill

- In the 2014 Study, 501 transactions (93%) allocated PC to goodwill. Transactions with negative goodwill, i.e., bargain purchases, were excluded from the 2014 study. Based on our search criteria, there were two bargain purchases in 2014.
- The industry segmentation of the 33 transactions with zero goodwill is as follows: Technology, eight; Industrials, four; Healthcare, three; CFR, nine; Energy, four; Financial Institutions, four; and ISM, one.
- The median allocation of PC to goodwill was 39%, while the mean was 38%.
- As illustrated below, 345 deals (65%) allocated 25% or greater of PC to goodwill.

**Distribution of PC Allocated to Goodwill**  
*2014 Study*



# Appendices

---

Annual Comparison



# Industry Summary

## Median PC Allocated to Intangible Assets and Goodwill Annual Comparison Summary: 2013 - 2015

	Median Results					
	Intangible Assets, % of PC			Goodwill, % of PC		
	2015	2014	2013	2015	2014	2013
All Industries	31%	28%	31%	38%	39%	35%
Aerospace, Defense & Government	33%	23%	20%	43%	52%	33%
Consumer, Food & Retail	32%	27%	34%	38%	33%	27%
Energy	21%	20%	31%	27%	28%	30%
Financial Institutions	1%	1%	2%	6%	6%	5%
Healthcare	42%	43%	43%	41%	41%	36%
Industrials	32%	32%	36%	36%	40%	42%
Infrastructure Services & Materials	26%	21%	21%	32%	24%	21%
Technology	36%	33%	33%	52%	54%	55%
Telecom	37%	4%	49%	47%	30%	23%

# Developed Technology

## Median PC Allocated to Developed Technology Annual Comparison Summary: 2013 - 2015

	Median Results					
	Developed Technology, % of PC			Goodwill, % of PC		
	2015	2014	2013	2015	2014	2013
All Industries	12%	10%	15%	46%	50%	45%
Aerospace, Defense & Government	8%	6%	2%	38%	47%	29%
Consumer, Food & Retail	9%	6%	8%	36%	46%	30%
Energy	2%	8%	62%	36%	52%	32%
Financial Institutions	5%	3%	11%	48%	36%	32%
Healthcare	12%	13%	19%	37%	46%	36%
Industrials	4%	4%	8%	28%	41%	50%
Infrastructure Services & Materials	6%	8%	4%	34%	43%	34%
Technology	36%	33%	33%	52%	53%	55%
Telecom	37%	4%	49%	44%	92%	33%

# In-Process Research & Development

## Median PC Allocated to IPR&D Annual Comparison Summary: 2013 - 2015

	Median Results					
	IPR&D, % of PC			Goodwill, % of PC		
	2015	2014	2013	2015	2014	2013
All Industries	15%	6%	15%	31%	37%	31%
Aerospace, Defense & Government	15%	NA	NA	9%	NA	NA
Consumer, Food & Retail	NA	NA	5%	NA	NA	36%
Energy	NA	27%	NA	NA	59%	NA
Financial Institutions	2%	NA	NA	48%	NA	NA
Healthcare	40%	34%	44%	30%	30%	31%
Industrials	0%	2%	9%	26%	42%	65%
Infrastructure Services & Materials	0%	NA	NA	NA	NA	NA
Technology	4%	5%	7%	35%	43%	31%
Telecom	5%	NA	NA	10%	NA	NA

# Trademarks & Trade Names

## Median PC Allocated to Trademarks and Trade Names Annual Comparison Summary: 2013 - 2015

	Median Results					
	Trademarks, % of PC			Goodwill, % of PC		
	2015	2014	2013	2015	2014	2013
All Industries	4%	4%	3%	43%	43%	38%
Aerospace, Defense & Government	1%	2%	3%	45%	47%	33%
Consumer, Food & Retail	14%	9%	10%	38%	32%	21%
Energy	1%	5%	1%	36%	28%	32%
Financial Institutions	1%	3%	NA	30%	53%	7%
Healthcare	4%	3%	3%	42%	44%	45%
Industrials	6%	5%	7%	37%	40%	42%
Infrastructure Services & Materials	3%	4%	5%	34%	23%	22%
Technology	2%	2%	1%	55%	52%	54%
Telecom	5%	3%	1%	35%	22%	43%

# Customer-Related Intangible Assets

## Median PC Allocated to Customer-Related Intangible Assets Annual Comparison Summary: 2013 - 2015

	Median Results					
	Customer-Related Assets, % of PC			Goodwill, % of PC		
	2015	2014	2013	2015	2014	2013
All Industries	18%	14%	11%	42%	45%	41%
Aerospace, Defense & Government	23%	18%	11%	43%	52%	33%
Consumer, Food & Retail	15%	12%	13%	36%	34%	27%
Energy	16%	17%	26%	27%	18%	29%
Financial Institutions	8%	12%	16%	45%	45%	20%
Healthcare	20%	17%	7%	42%	47%	50%
Industrials	22%	22%	18%	36%	41%	43%
Infrastructure Services & Materials	19%	7%	9%	31%	29%	27%
Technology	15%	13%	9%	52%	54%	53%
Telecom	22%	20%	28%	47%	29%	32%

## About Houlihan Lokey

---

# About Houlihan Lokey

---

Houlihan Lokey (NYSE: HLI) is a global investment bank with expertise in mergers and acquisitions, capital markets, valuation, financial restructuring, and strategic consulting. The firm serves corporations, institutions, and governments worldwide with offices in the United States, Europe, and the Asia-Pacific region. Independent advice and intellectual rigor are hallmarks of our commitment to client success across our advisory services. Houlihan Lokey is ranked as the No. 1 M&A advisor for all U.S. transactions, the No. 1 global M&A fairness opinion advisor over the past 15 years, and the No. 1 global restructuring advisor, according to Thomson Reuters. For more information, please visit [www.HL.com](http://www.HL.com).

## Tax & Financial Reporting Valuation

---

Our experience and analytical insight allows us to fulfill our clients' tax and financial reporting valuation needs. We go beyond mere documentation to provide our clients with the confidence to meet their growing financial reporting responsibilities. Our breadth of resources has enabled us to become a leader in valuing intangible and tangible assets. Our commitment to understanding changes in regulations and best practices—and our ability to set the standards for uncharted territory—allow our clients to remain focused on operating their businesses. Our services include:

- Purchase Price Allocation
- Goodwill Impairment
- 409A/Stock Compensation Valuation
- Fresh-Start Accounting Valuation
- Tax Valuation

For more information, visit [www.HL.com](http://www.HL.com).

# Disclaimers

---



# Disclaimers

---

© 2016 Houlihan Lokey. All rights reserved. This material may not be reproduced in any format by any means or redistributed without the prior written consent of Houlihan Lokey.

Houlihan Lokey is a trade name for Houlihan Lokey, Inc. and its subsidiaries and affiliates, which include: United States: Houlihan Lokey Capital, Inc., a SEC-registered broker-dealer and member of FINRA ([www.finra.org](http://www.finra.org)) and SIPC ([www.sipc.org](http://www.sipc.org)) (investment banking services); Houlihan Lokey Financial Advisors, Inc. (financial advisory services); Houlihan Lokey Consulting, Inc. (strategic consulting services); Houlihan Lokey Real Estate Group, Inc. (real estate advisory services); Europe: each of Houlihan Lokey (Europe) Limited and Houlihan Lokey (Financial Advisory) Limited, authorized and regulated by the U.K. Financial Conduct Authority; Houlihan Lokey GmbH; Houlihan Lokey (Netherlands) B.V.; and Houlihan Lokey (España) S.A.; 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; China: Houlihan Lokey Howard & Zukin Investment Consulting (Beijing) Co., Limited (financial advisory services); Japan: Houlihan Lokey K.K. (financial advisory services); Australia: Houlihan Lokey (Australia) Pty Limited (ABN 74 601 825 227), a company incorporated in Australia and licensed by the Australian Securities and Investments Commission (AFSL number 474953) in respect of financial services provided to wholesale clients. In the European Economic Area and Hong Kong, this communication may be directed to intended recipients including professional investors, high-net-worth companies or other institutional investors. Houlihan Lokey does not provide accounting, tax or legal advice. The information and material presented herein is provided for informational purposes only and is not intended to constitute accounting, tax or legal advice or to substitute for obtaining accounting, tax or legal advice from an attorney or licensed CPA.

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.