

Identification and Valuation of Acquired Intangible Assets for Financial Statement Reporting Purposes

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Discussion Outline

- Identification of intangible assets
- Understanding the valuation assignment
- Analyst data gathering and due diligence procedures
- Selection/rejection of individual valuation variables
- Generally accepted valuation approaches and methods
- Valuation synthesis and conclusion procedures
- Cost approach illustrative example
- Income approach illustrative example
- Market approach illustrative example
- Documenting the analysis in the valuation work file
- Reporting the valuation analysis and conclusion



What Is An Intangible Asset?

- It should be an asset, and it should be intangible
- FASB Statement of Financial Accounting Concepts No. 6 (“CON 6”) provides guidance on what is an asset:
 - It must provide probable future economic benefits
 - The owner/operator must be able to receive the benefit and restrict others from access to the benefit
 - The event that provided the right to receive the benefit has occurred
- Intangible means something that lacks physical substance
- For an intangible asset, intangible means that the economic benefit of the asset does not come from its physical substance
- Intangible asset value is based on the rights and privileges to which it entitles the owner/operator



Intangible Asset Attributes

- An intangible asset should have the following attributes:
 - It is subject to a specific identification and recognizable description
 - It is subject to legal existence and legal protection
 - It is subject to the rights of private ownership, and that private ownership should be transferable
 - There is some tangible evidence or manifestation of the existence of the intangible asset
 - It is created or it comes into existence at an identifiable time or as the result of an identifiable event
 - It is subject to being destroyed or to a termination of existence at an identifiable time or as the result of an identifiable event
 - There should be a specific bundle of legal rights associated with the intangible asset



Identifiable Intangible Assets for ASC Topic 805 Purposes

- An acquirer will recognize separately from goodwill the identifiable intangible assets acquired in a business combination.
- An intangible asset is identifiable if it meets either the separability criterion or the contractual-legal criterion.
- An intangible asset is identifiable if it meets either of the following criteria:
 - It is separable, that is, capable of being separated or divided from the entity and sold, transferred, licensed, rented, or exchanged, either individually or together with a related contract, identifiable asset, or liability, regardless of whether the entity intends to do so.
 - It arises from contractual or other legal rights, regardless of whether those rights are transferable or separable from the entity or from other rights and obligations.



Categories of Identifiable Intangible Assets

- The following are the ASC topic 805 (“Business Combinations”) categories of identifiable intangible assets:
 - Marketing-related intangible assets
 - Customer-related intangible assets
 - Artistic intangible assets
 - Contract-related intangible assets
 - Technology-related intangible assets
- According to ASC topic 805, goodwill is also an intangible asset, although it is not an identifiable intangible asset



Marketing-Related Intangible Assets

- ASC topic 805 examples of marketing-related intangible assets:
 - Newspaper mastheads
 - Trademarks, service marks, trade names, collective marks, certification marks
 - Trade dress
 - Internet domain name
 - Noncompetition agreements



Customer-Related Intangible Assets

- ASC topic 805 examples of customer-related intangible assets:
 - Customer lists
 - Customer contracts and related customer relationships
 - Noncontractual customer relationships
 - Order or production backlogs



Artistic-Related Intangible Assets

- ASC topic 805 examples of artistic-related intangible assets:
 - Plays, operas, ballets
 - Books, magazines, newspaper, and other literary works
 - Musical works such as composition, song lyrics, and advertising jingles
 - Photographs, drawings, and clip art
 - Audiovisual material including motion pictures, music videos, television programs



Contract-Related Intangible Assets

- ASC topic 805 examples of contract-based intangible assets:
 - License, royalty, standstill agreements
 - Advertising contracts
 - Lease agreements
 - Construction permits
 - Construction contracts
 - Construction management, service, or supply contracts
 - Broadcast rights
 - Franchise rights
 - Operating rights
 - Use rights
 - Servicing contracts
 - Employment contracts



Technology-Related Intangible Assets

- ASC topic 805 examples of technology-based intangible assets:
 - Patented or copyright software
 - Mask works
 - Unpatented technology
 - Databases
 - Trade secrets



What Is Not An Intangible Asset?

- There are intangible attributes or intangible influences that may affect the value of intangible assets
- These attributes or influences are not assets



What Is Not An Intangible Asset? (cont.)

Examples include:

1. High market share
2. High profitability or high profit margin
3. Lack of regulation
4. A regulated (or protected) position
5. Monopoly position (or barriers to entry)
6. Market potential
7. Breadth of customer appeal
8. Mystique
9. Heritage
10. Competitive edge
11. Life-cycle status
12. Uniqueness
13. Discount prices (or full prices)
14. Positive image
15. First to market
16. Technological superiority
17. Consumer confidence or trustworthiness
18. Creativity
19. High growth rate
20. High return on investment
21. Size
22. Synergies
23. Economies of scale
24. Efficiencies
25. Longevity



Differences between Tangible Assets and Intangible Assets

- The tangible elements of an intangible asset (e.g., a list of software source code) do not convert that asset into a tangible asset
- The important economic difference between a tangible asset and an intangible asset is this:
 - The value of a tangible asset is derived from its tangible nature
 - The value of an intangible asset is derived from its intangible nature



Financial Accounting Guidance Related to Intangible Asset (and Business) Valuation

- FASB ASC topic 820 Fair Value Measurement
- FASB ASC topic 805 Business Combinations
- FASB ASC topic 350 Intangibles – Goodwill and Other
- FASB ASC topic 360 Plant, Property, and Equipment
- FASB ASC topic 718 Compensation – Stock Compensation
- FASB ASC topic 852 Reorganizations



Other Nonauthoritative Guidance Related to Intangible Asset (and Business) Valuation

- Mandatory Performance Framework for the Certified in Entity and Intangible Valuations Credential
- Application of the Mandatory Performance Framework for the Certified in Entity and Intangible Valuations Credential



Defining the Intangible Asset Valuation Assignment

- There are two components to the intangible asset valuation assignment:
 - The objective of the analysis
 - The purpose of the analysis



The Objective of the Analysis

- The objective of the analysis describes what the valuation is intended to do
- The objective of the analysis describes the following:
 - The specific intangible asset that is the subject of the valuation
 - The ownership interest (or bundle of legal rights) that is the subject of the valuation
 - The standard of value and the premise of value being estimated
 - The “as of” valuation date
- The fair value standard of value is defined as follows:

“The price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants as of the measurement date.”



The Purpose of the Valuation Analysis

- The purpose of the analysis describes:
 - The audience of the intangible asset valuation (i.e., the party or parties who will rely on the analysis and conclusion)
 - The decision (if any) that will be influenced by the analysis results
- The purpose of the analysis indicates the following:
 - Why the intangible asset valuation assignment is being performed
 - The intended use(s) of the intangible asset valuation
 - Who is expected (and permitted to) rely on the results of the intangible asset valuation



Intangible Asset Bundles of Legal Rights

- The analyst should consider what bundle of legal rights is encompassed in the intangible asset valuation
 - Fee simple interest
 - Life interest or estate
 - Term interest or estate
 - Licensor/franchisor interest
 - Licensee/franchisee interest
 - Sublicense interest
 - Reversionary interest
 - Development rights
 - Exploitation rights
 - Use rights
 - Other contractual rights



Intangible Asset Data Gathering and Due Diligence

- The analyst typically gathers and analyzes information related to the current intangible asset owner/operator
- Such information typically includes the following:
 - Owner/operator historical and prospective financial statements
 - Owner/operator historical and prospective development/maintenance costs
 - Owner/operator current and expected resource/capacity constraints



Intangible Asset Data Gathering and Due Diligence (cont.)

- Description and estimate of the intangible asset economic benefits to the current owner/operator
 - Associated revenue increase (e.g., related product unit price/volume, market size/position)
 - Associated expense decrease (e.g., expense related to product returns, COGS, SGA, R&D)
 - Associated investment decrease (e.g., inventory, capital expenditures)
 - Associated risk decrease (existence of intangible asset licenses/contracts, decrease in the cost of capital components)
 - Assessment of the intangible asset impact on the owner/operator strategic position: SWOT – strengths, weaknesses, opportunities, and threats



Intangible Asset Market Participant/ Market Potential Considerations

- The analyst may consider the intangible asset market potential outside of the current owner/operator – i.e., to the market participant
- The analyst may consider the following factors:
 - Change in the market definition or the market size for an alternative owner/user
 - Change in alternative/competitive uses to an alternative owner/user
 - The intangible asset ability to create inbound/outbound license opportunities to an alternative owner/user
 - Whether the current owner (or a market participant) can (1) operate the intangible asset and also (2) outbound license the intangible asset (in different products, different markets, different territories, etc.)



Review of Intangible Asset Financial Projections

- The analyst should review and challenge (1) any owner/operator-prepared financial projections and (2) any owner/operator-prepared measures of intangible asset economic benefits.
- The analyst should perform the following benchmark analyses:
 - Compare owner/operator prior projections to prior actual results of operations
 - Compare owner/operator projections to current capacity constraints
 - Compare owner/operator projections to the current total market size
 - Consider published industry average comparable profit margin (“CPM”) data
 - Consider guideline publicly traded company CPM data



Review of Intangible Asset Financial Projections (cont.)

- Consider the quality and quantity of available intangible asset license data
- Perform a remaining useful life (“RUL”) analysis, with consideration of:
 - legal/statutory life
 - contract/license life
 - technology obsolescence life
 - economic obsolescence life
 - lives of prior generations of the intangible asset
 - position of the intangible asset in its life cycle



Generally Accepted Intangible Asset Valuation Approaches and Methods

- Cost approach methods
 - Reproduction cost new less depreciation method
 - Replacement cost new less depreciation method
 - Trended historical cost less depreciation method
- Market approach methods
 - Relief from royalty (“RFR”) method
 - Comparable uncontrolled transactions (“CUT”) method
 - Comparable profit margin (“CPM”) method



Generally Accepted Intangible Asset Valuation Approaches and Methods (cont.)

- Income approach methods
 - Differential income (with/without) method
 - Incremental income method
 - Greenfield method
 - Profit split method (or residual profit split method)
 - Disaggregated method
 - Distributor method
 - Residual (excess) income method
 - Capitalized excess earnings method (“CEEM”)
 - Multiperiod excess earnings method (“MEEM”)



Intangible Asset Cost Approach Valuation Considerations

- All cost approach methods include a current cost measurement and a depreciation measurement
- Four cost components
 - Direct costs (direct materials and direct labor)
 - Indirect costs (overhead and administrative expenses)
 - Developer's profit (on the direct and indirect costs)
 - Entrepreneurial incentive (opportunity cost—or lost income—during the replacement period)
- Three depreciation components
 - Physical depreciation (not a significant factor)
 - Functional/technological obsolescence (consider the intangible asset RUL)
 - Economic/external obsolescence (consider the intangible asset ROI)



Intangible Asset Cost Approach Valuation Considerations (cont.)

- Typical cost approach valuation formula

Replacement cost new
less Functional obsolescence
less Technological obsolescence
less Economic/external obsolescence
equals Fair value indication



Intangible Asset Cost Approach Valuation Considerations (cont.)

- Cost approach valuation considerations
 - All cost components (including opportunity cost) included in the measurement
 - Treatment of excess capital (development) costs and excess operating costs
 - Consideration of the intangible asset RUL
 - Consideration of owner/operator economic obsolescence



Intangible Asset Market Approach

Valuation Considerations

- Valuation pricing metrics are based on either comparable or guideline
 - Licenses of intangible assets
 - Sales of intangible assets
 - Companies that use intangible assets
- Valuation variables and procedures
 - Quantitative/qualitative analysis of the subject intangible asset
 - Guideline license/sale/company selection criteria
 - Guideline license/sale/company selection
 - Verification of the selected transactional data
 - Analysis of the selected transactional data
 - Selection of the appropriate pricing metrics
 - Selection of the pricing multiples specific to the subject intangible asset
 - Application of the selected pricing multiples to the subject intangible assets metrics



Intangible Asset Market Approach Valuation Considerations (cont.)

- Market approach valuation considerations
 - Seasoned guideline intangible assets/development stage subject intangible asset
 - Development stage guideline intangible assets/seasoned subject intangible asset
 - State of the competition in the owner/operator industry
 - Comparable profit margins—is the subject intangible asset the only reason for the difference in profit margins between the owner/operator company and the selected CPM companies?



Intangible Asset Income Approach Valuation Considerations

- Common intangible asset income concepts include:
 - Incremental (or differential) owner/operator revenue
 - Decremental owner/operator expense
 - Decremental owner/operator investment
 - Decremental risk to the owner/operator
 - Split of owner/operator business enterprise income
 - Excess owner/operator business enterprise income
- Common income measures (related to the subject intangible asset) include:
 - EBITDA
 - EBIT
 - NOI (EBITDA less income taxes)
 - Net income
 - Net cash flow



Intangible Asset Income Approach Valuation Considerations (cont.)

- Income approach valuation formula
 - Yield capitalization methods, based on a nonconstant growth income projection
 - over a finite RUL projection period
 - over a finite RUL projection period with a terminal value
 - Direct capitalization methods, based on a constant growth income projection
 - over a finite RUL projection period
 - over a perpetuity projection period

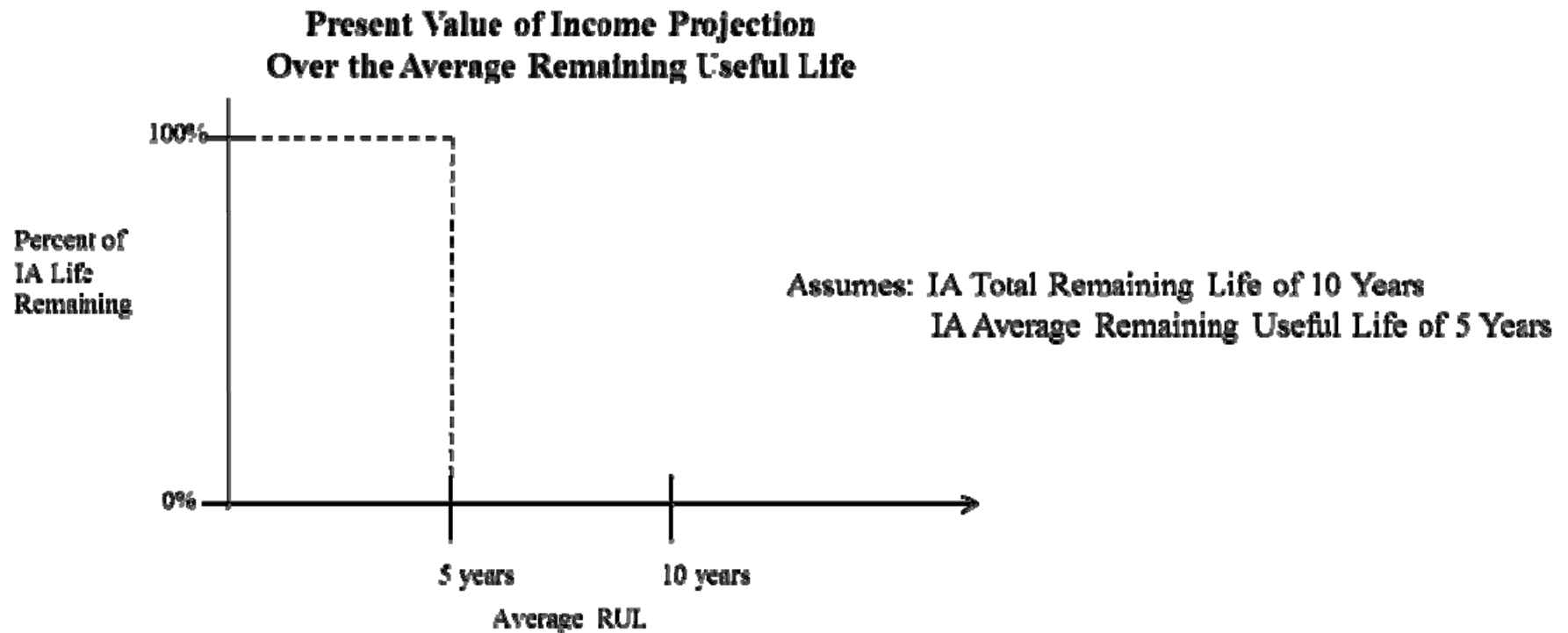


Intangible Asset Income Approach Valuation Considerations (cont.)

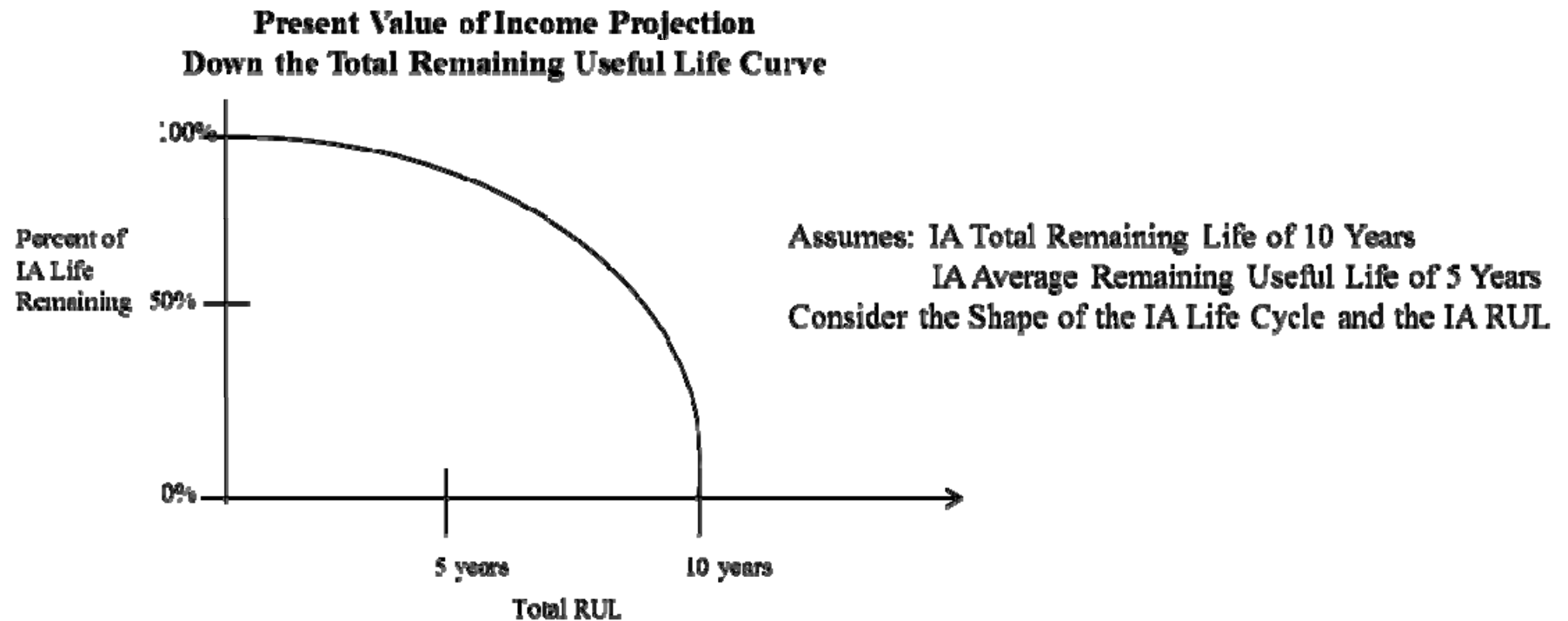
- Income approach valuation considerations
 - Match the selected discount/capitalization rate with the selected income measure
 - Match the selected discount/capitalization rate with the subject intangible asset risk
 - Consider the state of the competition in the owner/operator industry
 - Consider all subsequent (to the valuation date) capx, R&D expenses, marketing expenditures, etc.
 - Analyze only the income that is directly related to the subject intangible asset
 - Present value the projected income over either:
 - the intangible asset average RUL
 - down the intangible asset RUL decay curve



Intangible Asset Income Approach Valuation Considerations (cont.)



Intangible Asset Income Approach Valuation Considerations (cont.)



Income Approach—Tax Amortization Benefit (“TAB”) Adjustment

- For federal income tax purposes in the U.S., taxpayers may amortize a purchased intangible asset over the Internal Revenue Code Section 197 15-year period.
- In an income approach valuation method analysis:
 - the intangible asset value amortization expense is recognized as a non-cash expense before pretax income.
 - the amortization expense is added back as a non-cash expense after the income tax expense line.



Income Approach—TAB Adjustment (cont.)

- Alternatively, this incremental effect on value may be recognized by the use of a tax amortization benefit “factor”:

$$\text{Tax amortization benefit} = \frac{1}{1 - \left(\frac{\text{income tax rate}}{\text{amortization period}} \right)} (\text{present value annuity factor})$$

- In the TAB formula:
 - Income tax rate – is the tax rate used in the income projection
 - Amortization period – always 15 years
 - PVAF – for 15 years at the present value discount rate used in the income approach analysis



Income Approach—TAB Adjustment (cont.)

- Illustrative TAB example variables:
 - Intangible asset income approach preliminary value indication
 - \$100,000,000
 - Owner/operator income tax rate – 40%
 - Present value discount rate – 20%

$$\text{Tax amortization benefit} = \frac{1}{1 - \left(\frac{40\%}{15 \text{ years}} \right)^{4.6755}}$$

Tax amortization benefit factor = 1.1424

(or an approximately 14% TAB value increment)



Income Approach—TAB Adjustment (cont.)

- Illustrative TAB example conclusion:

$$\$100,000,000 \times 1.1424 = \$114,000,000 \text{ (rounded)}$$

Preliminary value \times TAB factor =

Intangible asset value indication

- Note: Not all intangible assets are Section 197 amortizable intangible assets.
- Note: Not all acquisition transactions are taxable (tax basis adjustment) acquisitions.
- Note: Not all national taxing jurisdictions allow for the amortization of acquired intangible assets.



Income Approach Illustrative Example— Customer Relationships

- The synthesis and conclusion is the last procedure in the valuation process
- The analyst typically performs a procedure that is referred to as the valuation reconciliation
- The analyst typically answers the following questions:
 - Did I value the right thing? That is, did I analyze the correct intangible asset?
 - Did I value the right thing the right way? That is, did I apply the appropriate valuation approaches, methods, and procedures?
 - Did I reach the right valuation conclusion? That is, did I correctly apply the valuation procedures that I performed in order to reach a reasonable and supportable value estimate?
 - Did I do what I intended to do? That is, did I perform the assignment that I set out to perform? Did I achieve the purpose and objective of the assignment?



Intangible Asset Valuation Synthesis and Conclusion Questions

- Alpha Telecommunications Company (“Alpha”) stock is acquired by Acquiror Telecom Company. The valuation date is January 1, 2017.
- The target company’s recurring customer relationships are an important intangible asset for Alpha.
- The stock acquisition transaction will be accounted for as a business combination under FASB ASC topic 805. Fair value is the appropriate standard of value. Value in continued use is the appropriate premise of value.
- Alpha serves both residential customers (about two-thirds of Alpha revenue) and commercial customers (about one-third of Alpha revenue).



Income Approach Illustrative Example— Customer Relationships (cont.)

- Alpha retains an analyst to estimate the fair value of its customer relationship intangible asset as of January 1, 2017.
- The analyst decides to use the income approach and the multiperiod excess earnings method (“MEEM”) to value the customer relationships intangible asset.
- The analyst has already valued the Alpha contributory working capital assets, tangible assets, and the following intangible assets: computer software, proprietary technology, trademarks and trade names, and assembled workforce.



Alpha Residential Customer Relationships Valuation

Selected Valuation Variables

As of January 1, 2017 (\$000s)

Analysis Projection Variables	Basis for the Valuation Variable Selection
Total Alpha 2016 budget revenue	\$6,000,000
Budgeted residential customer revenue	\$4,000,000
Budgeted commercial customer revenue	\$2,000,000
Annual revenue growth rates	Alpha management long-range plan
Customer attrition rate	Based on average of actual monthly attrition rates for 2013-2016
Remaining useful life	Years until remaining customer revenue is less than 5% of the original customer revenue
EBITDA margin %	Based on average of 2012-2016, adjusted for new customer selling expense
Depreciation expense	15% of revenue, based on average of 2012-2016
Amortization expense	5% of revenue, based on average of 2012-2016



Alpha Residential Customer Relationships Valuation

Selected Valuation Variables

As of January 1, 2017 (\$000s) (cont.)

Analysis Projection Variables	Basis for the Valuation Variable Selection
Income tax rate	Market-derived effective income tax rate
Contributory asset charges:	
Working capital charge	Working capital balance = 10% of revenue, based on 2012-2016 average; capital charge % = 10% WACC
Tangible asset charge	Tangible asset fair value = \$4,800,000, based on RCNLD analysis of RE and TPP; \$4,800,000 = 80% of total revenue; capital charge % = WACC
Intangible asset charge	Contributory intangible asset fair value = \$2,000,000, based on fair value valuations of software, trademarks, technology and workforce; capital charge % = WACC; \$200,000 capital charge = 3% of total revenue



Alpha Residential Customer Relationships Valuation

Selected Valuation Variables

As of January 1, 2017 (\$000s) (cont.)

Analysis Projection Variables	Basis for the Valuation Variable Selection
Capital expenditures	Capx = 105% of depreciation expense, based on analyst due diligence of Alpha management projections; consistent with historical 10-year average
Working capital change	Based on projected annual change in working capital balance; balance is based on 10% of remaining customer revenue
Discount periods	Midyear discounting convention assumed
Discount rate	Based on 10% WACC; the WACC equals the WARA (and the acquisition IRR), so the analyst used 10% as the capital charge ROI
Tax amortization benefit factor	Based on 15-year life, 40% income tax rate, and 7.6061 PVA factor for 15 years and 10% present value discount rate



Alpha Residential Customer Relationships Valuation

As of January 1, 2017 (\$000s)

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11
Total Residential Customer Revenue	4,000,000	4,160,000	4,326,400	4,499,456	4,679,434	4,866,612	5,012,610	5,162,988	5,317,878	5,477,414	5,641,737
Residential Revenue Growth Rate		4%	4%	4%	4%	4%	3%	3%	3%	3%	3%
Customer Attrition Rate	24%	24%	24%	24%	24%	24%	24%	24%	24%	24%	24%
Remaining Customer Revenue %	76.0%	57.8%	43.9%	33.4%	25.5%	19.3%	14.7%	11.1%	8.5%	6.4%	4.9%
Remaining Customer Revenue	3,040,000	2,404,482	1,899,290	1,502,818	1,188,576	939,256	736,854	573,092	452,020	350,555	276,445
EBITDA Margin %	<u>60%</u>	<u>60%</u>	<u>60%</u>	<u>60%</u>	<u>60%</u>	<u>60%</u>	<u>60%</u>	<u>60%</u>	<u>60%</u>	<u>60%</u>	<u>60%</u>
EBITDA	1,824,000	1,442,688	1,139,574	901,691	713,146	563,554	442,112	343,855	271,212	210,333	165,867
Depreciation/Amortization Expense (% of revenue)	<u>20%</u>	<u>20%</u>	<u>20%</u>	<u>20%</u>	<u>20%</u>	<u>20%</u>	<u>20%</u>	<u>20%</u>	<u>20%</u>	<u>20%</u>	<u>20%</u>
Depreciation/Amortization Expense	608,000	480,896	379,858	300,564	237,715	187,851	147,371	114,618	90,404	70,111	55,289
EBIT	1,216,000	961,792	759,716	601,127	475,431	375,703	294,741	229,237	180,808	140,222	110,578
- Income Taxes @ 40%	<u>486,400</u>	<u>384,717</u>	<u>303,886</u>	<u>240,451</u>	<u>190,172</u>	<u>150,281</u>	<u>117,896</u>	<u>91,695</u>	<u>72,323</u>	<u>56,089</u>	<u>44,231</u>
After-Tax Operating Income	729,600	577,075	455,830	360,676	285,259	225,422	176,845	137,542	108,485	84,133	66,347
Less: Contributory Asset Charges:											
- Working Capital Asset Charge	30,400	24,045	18,993	15,028	11,886	9,393	7,369	5,731	4,528	3,506	2,764
- Tangible Asset Capital Charge	243,200	192,358	151,943	120,225	95,086	75,141	58,948	45,847	36,162	28,044	22,116
- Intangible Asset Capital Charge	<u>91,200</u>	<u>72,134</u>	<u>56,979</u>	<u>45,085</u>	<u>46,657</u>	<u>28,178</u>	<u>22,106</u>	<u>17,193</u>	<u>13,561</u>	<u>10,517</u>	<u>8,293</u>
Total Capital Charge	364,800	288,537	227,915	180,338	142,629	112,712	88,423	68,771	54,243	42,067	33,173
+ Depreciation/Amortization Expense	608,000	480,896	379,858	300,564	237,715	187,851	147,371	114,618	90,404	70,111	55,289
- Capital Expenditures	478,800	378,706	299,139	236,694	187,200	147,932	116,054	90,262	71,193	55,212	43,540
+ Working Capital Decrease	(96,000)	(63,552)	(50,519)	(39,242)	(31,425)	(24,931)	(20,241)	(16,376)	(12,107)	(10,146)	(7,412)
= Net Cash Flow from Remaining Customers	590,000	454,280	359,153	283,455	224,570	177,560	139,980	109,503	85,560	67,111	52,335
Discount Period	0.5	1.5	2.5	3.5	4.5	5.5	6.5	7.5	8.5	9.5	10.5
Present Value Factor @ 10%	<u>0.9524</u>	<u>0.8658</u>	<u>0.7871</u>	<u>0.7155</u>	<u>0.6505</u>	<u>0.5914</u>	<u>0.5376</u>	<u>0.4887</u>	<u>0.4443</u>	<u>0.4039</u>	<u>0.3672</u>
Present Value of Remaining Customer Cash Flow	561,916	393,316	282,689	202,812	146,083	105,009	75,253	53,514	38,014	27,106	19,217
Total Present Value of Remaining Customer Cash Flow	<u>1,904,929</u>										
× Tax Amortization Benefit Factor	<u>1.2544</u>										
= Fair Value of Remaining Customers (rounded)	<u>2,400,000</u>										



Alpha Residential Customer Relationships Valuation As of January 1, 2017 (\$000s)

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11
Total Residential Customer Revenue	4,000,000	4,160,000	4,326,400	4,499,456	4,679,434	4,866,612	5,012,610	5,162,988	5,317,878	5,477,414	5,641,737
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Alpha Residential Customer Relationships Valuation Resident Customer Turnover Rates

Month	2013	2014	2015	2016
January	2.46%	2.08%	2.00%	2.10%
February	1.76%	1.93%	2.02%	1.94%
March	2.05%	2.04%	2.05%	2.08%
April	1.91%	2.01%	2.01%	2.08%
May	2.06%	1.98%	2.01%	1.95%
June	1.95%	1.99%	2.09%	2.00%
July	1.92%	2.00%	2.00%	1.78%
August	2.26%	2.05%	2.03%	2.00%
September	1.96%	2.02%	2.09%	2.11%
October	2.20%	2.10%	2.01%	2.03%
November	1.87%	2.00%	1.93%	1.86%
December	1.56%	2.01%	1.90%	1.85%
Annual Customer Turnover Rate	24.0%	24.2%	24.2%	23.8%



Alpha Residential Customer Relationships Valuation

As of January 1, 2017 (\$000s) (cont.)

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11
Remaining Customer Revenue	3,040,000	2,404,482	1,899,290	1,502,818	1,188,576	939,256	736,854	573,092	452,020	350,555	276,445
EBITDA Margin %	<u>60%</u>	<u>60%</u>	<u>60%</u>	<u>60%</u>	<u>60%</u>	<u>60%</u>	<u>60%</u>	<u>60%</u>	<u>60%</u>	<u>60%</u>	<u>60%</u>
EBITDA	1,824,000	1,442,688	1,139,574	901,691	713,146	563,554	442,112	343,855	271,212	210,333	165,867
Depreciation/Amortization Expense (% of revenue)	<u>20%</u>	<u>20%</u>	<u>20%</u>	<u>20%</u>	<u>20%</u>	<u>20%</u>	<u>20%</u>	<u>20%</u>	<u>20%</u>	<u>20%</u>	<u>20%</u>
Depreciation/Amortization Expense	608,000	480,896	379,858	300,564	237,715	187,851	147,371	114,618	90,404	70,111	55,289
EBIT	1,216,000	961,792	759,716	601,127	475,431	375,703	294,741	229,237	180,808	140,222	110,578
- Income Taxes @ 40%	<u>486,400</u>	<u>384,717</u>	<u>303,886</u>	<u>240,451</u>	<u>190,172</u>	<u>150,281</u>	<u>117,896</u>	<u>91,695</u>	<u>72,323</u>	<u>56,089</u>	<u>44,231</u>
After-Tax Operating Income	729,600	577,075	455,830	360,676	285,259	225,422	176,845	137,542	108,485	84,133	66,347



Alpha Residential Customer Relationships Valuation Normalized EBITDA Margin Analysis

	2012	2013	2014	2015	2016	Mean	Median	Selected
Reported EBITDA Margin %	58.2	58.0	57.6	58.2	58.0	58.0	58.0	
+ New Customer Selling Expense %	<u>2.0</u>	<u>2.2</u>	<u>2.4</u>	<u>2.2</u>	<u>2.0</u>	<u>2.2</u>	<u>2.2</u>	
= Adjusted EBITDA Margin %	60.2	60.2	60.0	60.4	60.0	60.2	60.2	60%

The new customer selling expense includes any advertising directed to new customers and new customer promotion expense.



Alpha Depreciation/Amortization Expense and Capitalization Expenditures

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11
Remaining customer revenue	3,040,000	,404,480	1,899,290	1,502,818	1,188,576	939,256	736,854	573,092	452,020	350,555	276,445
Depreciation expense (% of revenue)	<u>15%</u>	<u>15%</u>	<u>15%</u>	<u>15%</u>	<u>15%</u>	<u>15%</u>	<u>15%</u>	<u>15%</u>	<u>15%</u>	<u>15%</u>	<u>15%</u>
Depreciation expense	456,000	360,672	284,894	225,423	178,286	140,999	110,528	85,964	67,803	52,593	41,467
Amortization expense (% of revenue)	<u>5%</u>	<u>5%</u>	<u>5%</u>	<u>5%</u>	<u>5%</u>	<u>5%</u>	<u>5%</u>	<u>5%</u>	<u>5%</u>	<u>5%</u>	<u>5%</u>
Amortization expense	<u>152,100</u>	<u>120,224</u>	<u>94,965</u>	<u>75,141</u>	<u>59,429</u>	<u>46,963</u>	<u>36,843</u>	<u>28,655</u>	<u>22,601</u>	<u>17,528</u>	<u>13,822</u>
Depreciation & amortization expense	608,000	480,896	379,859	300,564	23,775	187,851	147,371	114,619	90,404	70,111	55,289
Capx as % of depreciation expense	<u>105%</u>	<u>105%</u>	<u>105%</u>	<u>105%</u>	<u>105%</u>	<u>105%</u>	<u>105%</u>	<u>105%</u>	<u>105%</u>	<u>105%</u>	<u>105%</u>
Capx	478,800	378,706	299,139	236,694	187,200	147,932	116,054	90,262	71,193	55,212	43,540



Alpha Residential Customer Relationships Valuation As of January 1, 2017 (\$000s) (cont.)

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11
Less: Contributory asset charges											
- Working capital asset charge	30,400	24,045	18,993	15,028	11,886	9,393	7,369	5,731	4,528	3,506	2,764
- Tangible asset capital charge	243,200	192,358	151,943	120,225	95,086	75,141	58,948	45,847	36,162	28,044	22,116
- Intangible asset capital charge	91,200	72,134	56,979	45,085	35,657	28,178	22,106	17,193	13,561	10,517	8,293
Total capital charge	364,800	288,537	227,915	180,338	142,629	112,712	88,423	68,771	54,243	42,067	33,173
+ Depreciation/amortization expense	608,000	480,896	379,858	300,564	237,715	187,851	147,371	114,618	90,404	70,111	55,289
- Capital expenditures	478,800	378,706	299,139	236,694	187,200	147,932	116,054	90,262	71,193	55,212	43,540
+ Working capital decrease	(96,000)	(63,552)	(50,519)	(39,242)	(31,425)	(24,931)	(20,241)	(16,376)	(12,107)	(10,146)	(7,412)
■ Net cash flow from remaining customers	590,000	454,280	359,153	283,455	224,570	177,560	139,980	109,503	85,560	67,111	52,335



Alpha Contributory Asset Charge Working Capital (\$000s)

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11
Remaining customer revenue	3,040,000	2,404,480	1,899,290	1,502,818	1,188,576	939,256	736,854	573,092	452,020	350,555	276,665
Working capital (% of revenue)	<u>10%</u>	<u>10%</u>	<u>10%</u>	<u>10%</u>	<u>10%</u>	<u>10%</u>	<u>10%</u>	<u>10%</u>	<u>10%</u>	<u>10%</u>	<u>10%</u>
Working capital balance	304,000	240,448	189,929	150,282	118,857	93,926	73,685	57,309	45,202	35,056	27,644
Capital charge %	<u>10%</u>	<u>10%</u>	<u>10%</u>	<u>10%</u>	<u>10%</u>	<u>10%</u>	<u>10%</u>	<u>10%</u>	<u>10%</u>	<u>10%</u>	<u>10%</u>
Capital charge on working capital	30,400	24,045	18,993	15,028	11,886	9,393	7,369	5,731	4,520	3,506	2,764
Change in annual working capital balance	(96,000)	(63,552)	(50,519)	(39,247)	(31,425)	(24,931)	(20,241)	(16,376)	(12,107)	(10,146)	(7,412)



Alpha Contributory Asset Charge Tangible Assets (\$000s)

	<u>Year 1</u>	<u>Year 2</u>	<u>Year 3</u>	<u>Year 4</u>	<u>Year 5</u>	<u>Year 6</u>	<u>Year 7</u>	<u>Year 8</u>	<u>Year 9</u>	<u>Year 10</u>	<u>Year 11</u>
Remaining customer revenue	3,040,000	2,404,480	1,899,290	1,502,818	1,188,576	939,256	736,854	573,092	452,020	350,555	276,445
Net tangible assets as % of revenue	<u>80%</u>	<u>80%</u>	<u>80%</u>	<u>80%</u>	<u>80%</u>	<u>80%</u>	<u>80%</u>	<u>80%</u>	<u>80%</u>	<u>80%</u>	<u>80%</u>
Remaining customer tangible assets	2,432,000	1,923,584	1,519,432	1,202,254	950,861	751,405	589,483	458,474	361,616	280,444	221,156
Capital charge %	<u>10%</u>	<u>10%</u>	<u>10%</u>	<u>10%</u>	<u>10%</u>	<u>10%</u>	<u>10%</u>	<u>10%</u>	<u>10%</u>	<u>10%</u>	<u>10%</u>
Capital charge on tangible assets	243,200	192,358	151,943	120,225	95,086	75,141	58,948	45,847	36,162	28,044	22,116



Alpha Contributory Asset Charge Intangible Assets (\$000s)

Contributory Intangible Assets	Value
Computer Software	500,000
Trademarks and Trade Names	500,000
Proprietary Technology	500,000
Assembled Workforce	<u>500,000</u>
Total	2,000,000
<u>Contributory Intangible Asset Capital Charge</u>	
Contributory Intangible Assets	2,000,000
× Return on Contributory Assets	<u>10%</u>
= Contributory Intangible Asset Capital Charge	200,000
÷ Total Alpha Revenue	<u>6,000,000</u>
= Contributory Intangible Asset Capital Charge as a % of Revenue	<u><u>3%</u></u>



Alpha Residential Customer Relationships Valuation As of January 1, 2017 (\$000s)

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11
▪ Net cash flow from remaining customers	590,000	454,280	359,153	283,455	224,570	177,560	139,980	109,503	85,560	67,111	52,335
Discount period	0.5	1.5	2.5	3.5	4.5	5.5	6.5	7.5	8.5	9.5	10.5
Present value factor @ 10%	<u>0.9524</u>	<u>0.8658</u>	<u>0.7871</u>	<u>0.7155</u>	<u>0.6505</u>	<u>0.5914</u>	<u>0.5376</u>	<u>0.4887</u>	<u>0.4443</u>	<u>0.4039</u>	<u>0.3672</u>
Present value of remaining customer cash flow	561,916	393,316	282,689	202,812	146,083	105,009	75,253	53,514	38,014	27,106	19,217
Total present value of remaining customer cash flow	1,904,929										



Alpha Residential Customer Relationships Valuation As of January 1, 2017 (\$000s) (cont.)

	Year 1
Total Residential Customer Revenue	4,000,000
Residential Revenue Growth Rate	
Customer Attrition Rate	24%
Remaining Customer Revenue %	76.0%
Remaining Customer Revenue	3,040,000
EBITDA Margin %	<u>60%</u>
EBITDA	1,824,000
Depreciation/Amortization Expense (% of revenue)	<u>20%</u>
Depreciation/Amortization Expense	608,000
EBIT	1,216,000
- Income Taxes @ 40%	<u>486,400</u>
After-Tax Operating Income	729,600
Less: Contributory Asset Charges:	
- Working Capital Asset Charge	30,400
- Tangible Asset Capital Charge	243,200
- Intangible Asset Capital Charge	<u>91,200</u>
Total Capital Charge	364,800
+ Depreciation/Amortization Expense	608,000
- Capital Expenditures	478,800
+ Working Capital Decrease	(96,000)
= Net Cash Flow from Remaining Customers	590,000
Discount Period	0.5
Present Value Factor @ 10%	<u>0.9524</u>
Present Value of Remaining Customer Cash Flow	561,916
Total Present Value of Remaining Customer Cash Flow	<u>1,904,929</u>
× Tax Amortization Benefit Factor	<u>1.2544</u>
= Fair Value of Remaining Customers (rounded)	<u>2,400,000</u>



Cost Approach Illustrative Example— Assembled Workforce

- Beta Electric Company (“Beta”) owns and operates an electric generating plant. The Beta stock is acquired by Acquiror Electric Company.
- The valuation date is January 1, 2017.
- The purchase transaction will be accounted for as a business combination under FASB ASC topic 805. The appropriate standard of value is fair value. The appropriate premise of value is value in continued use.
- Even though the Beta assembled workforce is not an identifiable intangible asset, the assembled workforce should be valued (1) to properly calculate any appropriate contributory asset charge and (2) to ensure that the residual amount of goodwill is at least equal to the amount of the implied fair value of the assembled workforce.



Cost Approach Illustrative Example— Assembled Workforce (cont.)

- The Beta plant operates with 50 employees.
- There are 3 principal staff levels; let's call them executives, technicians, and administrative staff.
- Beta retains an analyst to estimate the fair value its assembled workforce intangible asset.
- The analyst decides to use the cost approach and the replacement cost new less depreciation ("RCNLD") method to value the Beta assembled workforce.



Beta Trained and Assembled Workforce Valuation RCNLD Method as of January 1, 2017

Assembled Workforce Employee Component	No. of Employees	Average Salary	Other Costs Factor	Full Absorption Cost	Percent of the Total Annual (Full Absorption) Cost Required to:			Percent of Full Absorption Cost to Replace Employees	Average Replacement Cost New Component	Total Replacement Cost New Component
					Recruit Employees	Hire Employees	Train Employees			
Executives	10	180,000	1.6	288,000	20%	20%	40%	80%	230,400	\$2,304,000
Technicians	20	60,000	1.5	90,000	10%	10%	30%	50%	45,000	900,000
Administrative Staff	20	40,000	1.4	56,000	5%	10%	25%	40%	22,400	448,000
Total Employees	50									
Total Direct Cost and Indirect Cost Components										3,652,000
Add: Developer's Profit Cost Component:										
Developer's Profit Margin										<u>10%</u>
Developer's Profit Cost Component (rounded)										<u>365,000</u>
Total Direct Costs and Indirect Costs plus Developer's Profit										4,017,000
Add: Entrepreneurial Incentive:										
Estimated Total Workforce Replacement Period							6 months			
Estimated Average Workforce Replacement Cost Investment (i.e., \$4,017,000 total cost ÷ 2)							\$2,009,000			
Required Annual Return on Investment							16%			
Required Return on Investment for 6-Month Replacement Period							8%			
Entrepreneurial Incentive (i.e., \$2,000 × 8% [rounded])							\$161,000			<u>161,000</u>
Total Replacement Cost New										\$4,178,000



Replacement Cost New—Direct Costs and Indirect Costs

- The RCN estimate considers the total compensation paid to each employee, labelled as “average salary.” These costs are direct costs.
- The RCN estimate considers all of the other expenses that the entity incurs related to each employee. These costs are indirect costs, including:
 1. payroll taxes
 2. employee benefits
 3. continuing professional education
 4. annual license and credential fees
 5. uniforms and lab coats
 6. employee parties, gifts, etc.



Replacement Cost New—Direct Costs and Indirect Costs (cont.)

- The total annual cost that the entity pays for an employee is called the full absorption cost. This full absorption cost includes:
 1. the compensation paid by the employer to the employee and
 2. the expenses paid by the employer to others so that the employee can perform his or her job.
- The RCN includes all of the costs that the employer would incur to replace the current workforce with a brand new (but comparable) workforce. These costs may include:
 1. advertising for recruiting potential new employees to apply for each position
 2. interviewing expenses, background checks and other pre-employment tests, and placement fees incurred to have the new employee show up on day one
 3. on-the-job training in the particular position including first month training, first year training, and accumulated continuing education for long-term employee



Replacement Cost New—Direct Costs and Indirect Costs (cont.)

- There are two additional cost components to consider:
 1. Developer's profit
 2. Entrepreneurial incentive



Replacement Cost New—Developer's Profit and Entrepreneurial Incentive

- The developer's profit considers the profit margin that a management consulting, human resources outsourcing, or professional staffing firm would earn if a willing buyer retained such a firm to create the assembled workforce.
- Likewise, the operating business owners would expect to earn a profit on the sale of their internally developed assets to the willing buyer.
- There are several alternative procedures for estimating entrepreneurial incentive.
- A common procedure is to estimate the lost profits opportunity cost that the entity would experience during the intangible asset replacement period.



Replacement Cost New—Developer's Profit and Entrepreneurial Incentive (cont.)

- When using this procedure, the analyst should appropriately allocate the entity's overall profit to all of the intangible assets.
- Let's assume that the subject operating business has five intangible assets. The entrepreneurial incentive should be allocated among the five intangible assets.
- Another common entrepreneurial profit measurement procedure is to calculate a fair rate of return on the total intangible asset cost components (i.e., direct costs, indirect costs, and developer's profit).
- The assembled workforce RCN is the sum of all four cost components.



Illustrative Depreciation Considerations

- In order to reach a value conclusion, the analyst estimates the assembled workforce RCNLD. As in any cost approach analysis, the analyst considers if there is any deterioration or obsolescence related to this intangible asset.



Illustrative Depreciation Considerations

(cont.)

- From the valuation due diligence, the analyst learns the following facts:
 1. Two of the entity's technicians are scheduled to retire in the next year or so
 2. One of the entity's administrative staff is out on disability leave and is not expected to return to work
 3. The entity is overstaffed with regard to administrative staff; in addition to the admin on disability leave, any willing buyer would eliminate two of the administrative positions
 4. The entity has experienced very low turnover of the technician staff; because of long tenure, these technicians earn an average annual salary of \$60,000; if the actual technicians were replaced, they would be replaced with adequately qualified (but less tenured) employees earning an average annual salary of \$50,000



Beta Trained and Assembled Workforce Valuation Physical Deterioration as of January 1, 2017

Workforce Components	No. of Employees	Average Direct and Indirect Replacement Cost New	Total Direct and Indirect Replacement Cost New	Developer's Profit and Entrepreneurial Incentive Cost Components	Total Replacement Cost New	Percent Depreciation	Accumulated Depreciation
Technicians	2	\$45,000	\$90,000	\$13,000	\$103,000	100%	\$103,000
Administrative Staff	1	22,400	22,400	<u>3,200</u>	25,600	100%	<u>25,600</u>
Total				16,200	128,600		<u>\$128,600</u>



Beta Trained and Assembled Workforce Valuation Functional Obsolescence as of January 1, 2017

Workforce Components	No. of Employees	Excess Direct and Indirect Replacement Cost New	Excess Developer's Profit and Entrepreneurial Incentive Cost Components	Excess Total Replacement Cost New	Functional Obsolescence
Technicians	18	\$7,500	\$1,100	\$8,600	\$154,800
Administrative Staff	2	22,400	3,200	25,600	<u>51,200</u>
Total					<u>\$206,000</u>



Beta Trained and Assembled Workforce Valuation RCNLD Method as of January 1, 2017

Cost Approach Analysis	Cost Component
Replacement Cost New (all employees)	\$4,178,000
Less: Physical Deterioration Allowance (inadequate staff)	128,600
Less: Functional Obsolescence Allowance (superadequate staff)	<u>206,000</u>
Equals: Replacement Cost New less Depreciation	<u>\$3,843,400</u>

- This RCNLD conclusion indicates what a willing buyer would pay to a willing seller for this assembled workforce, assuming that there is no economic obsolescence related to this intangible asset.



Beta Trained and Assembled Workforce Valuation Economic Obsolescence as of January 1, 2017

Item	Financial or Operational Performance Metric	LTM Ended 12/31/14	Benchmark Measure	LTM Percent Shortfall	Benchmark Comparison Reference Source
1	Average Collected Revenue per Employee	\$340,000	\$420,000	19%	2016 Industry Average
2	Annual Growth Rate in the Entity Revenue	3.5%	4.5%	22%	Actual Subject Entity Average for 2012-2016
3	Profit Margin	10%	14%	29%	2016 Industry Average
4	Profit Contribution Margin	55%	67%	18%	2016 Industry Average
5	Return on the Entity Average Assets	10%	12.5%	20%	Actual Subject Entity Average for 2012-2016
6	Return on the Entity Average Equity	20%	25%	20%	Actual Subject Entity Average for 2012-2016
	LTM Benchmark Measures Percent Shortfall:				
		- Mean	21.3%		
		- Median	20.0%		
		- Mode	20.0%		
		- Trimmed Mean	20.3%		
		- Trimmed Median	<u>20.0%</u>		
	Economic Obsolescence Indication		<u>20.0%</u>		



Beta Trained and Assembled Workforce Valuation Economic Obsolescence as of January 1, 2017

Cost Approach Analysis	Cost Component
Replacement Cost New less Depreciation	\$3,843,400
× Selected Economic Obsolescence Percent	<u>20%</u>
= Economic Obsolescence Allowance (rounded)	<u>\$768,700</u>



Beta Trained and Assembled Workforce Valuation Cost Approach Valuation Synthesis and Conclusion As of January 1, 2017

<u>Cost Approach Analysis</u>	<u>Cost Component</u>
Replacement Cost New	\$4,178,000
– Physical Deterioration Allowance	128,600
– Functional Obsolescence Allowance	206,000
– Economic Obsolescence Allowance	<u>768,700</u>
= Replacement Cost New less Depreciation	<u>3,074,700</u>
Assembled Workforce Fair Value (rounded)	<u>\$3,100,000</u>



Market Approach Illustrative Example— Trademarks

- Gamma Company is a telecommunications company. The Gamma Company stock was acquired by Consolidated Telecom Company. This acquisition will be accounted for as a business combination under the provisions of FASB ASC topic 805.
- The valuation date is January 1, 2017.
- The company's trademarks and trade names are an important identifiable intangible asset for Gamma.
- The appropriate standard of value is fair value. The appropriate premise of value is value in continued use.
- Gamma retains an analyst to estimate the fair value of the acquired trademarks intangible asset.



Market Approach Illustrative Example— Trademarks (cont.)

- The analyst decides to use the market approach and the relief from royalty (RFR) method.
- Management provided the analyst with a long-term financial forecast. The analyst performed a rigorous due diligence and concluded that the appropriate trademark RUL is 20 years.
- The Gamma WACC is 11%. This 11% is also the purchase price allocation WARA. And, this 11% is also the overall acquisition price IRR.



Common Intellectual Property License Transaction Databases

RoyaltySource

www.royaltysource.com—The AUS Consultants database provides license transaction royalty rates. The database can be searched by industry, technology, and/or keyword. The information includes royalty rates, name of the licensee and the licensor, a description of property licensed (or sold), the transaction terms, and the original information sources.

RoyaltyStat, LLC

www.royaltystat.com—RoyaltyStat is a subscription-based database of license royalty rates and license agreements, compiled from Securities and Exchange Commission documents. It is searchable by SIC code or by full text.



Common Intellectual Property License Transaction Databases (cont.)

Royalty Connection

www.royaltyconnection.com—Royalty Connection™ provides online access to license royalty rate and other license information on all types of technology, patents, trade secrets, and know-how. Users can search by industry, product category, or keyword.

ktMINE

www.bvmarketdata.com—ktMINE is an interactive database that provides direct access to license royalty rates, actual license agreements, and detailed agreement summaries. License agreements are searchable by industry, keyword, and various other parameters.



Gamma Company Trademarks & Trade Names Market Approach—Relief from Royalty Method Illustrative CUT Trademark License Transactions

Trademark Licensor	Trademark Licensee	Comparable Uncontrolled Transaction (“CUT”) Trademark License Description	License Term	License Royalty Rate Range		License Upfront/ Flat Fee
				Low	High	
Southwestern Bell Telephone Company	Telecom Group	Telecom Group agreed to a royalty for the exclusive right to the name, reputation, and public image of the Southwestern Bell Telephone Company.	10 years	5.0%	5.0%	NA
Cable and Wireless PLC	Hong Kong Telecommunications Ltd.	Cable and Wireless entered into an exclusive agreement with a Hong Kong telephone company for the use of its trademarks (in particular, use of the telecommunication name and logo in connection with international business) on relevant products and services.	10 years	8.0%	8.0%	NA
AT&T Corp.	KIRI Inc.	The licensor grants to the licensee an exclusive license to use the licensed marks (AT&T and globe design logo) solely in connection with the marketing, advertising, promotion, and provision of the licensed services (such as telecommunication and Internet services) in the licensed territory.	5 years	.5%	4.0%	\$2.5 million minimum guarantee
Nextel	Nextel Partners	An alliance between a private U.S. company and a publicly owned U.K. spin-off company includes an exclusive license agreement for rights to use the Nextel brand name. The licensee owns its own spectrum and provides services as Nextel.	5 years	0.5%	1.0%	NA



Gamma Company Trademarks & Trade Names Market Approach—Relief from Royalty Method Illustrative CUT Trademark License Transactions (cont.)

Trademark Licensor	Trademark Licensee	Comparable Uncontrolled Transaction (“CUT”) Trademark License Description	License Term	License Royalty Rate Range		License Upfront/ Flat Fee
				Low	High	
France Telecom (Orange Brand Services Limited, UK)	PTK Centertel	PTK Centertel is rebranding its name from Idea to Orange. Ida, which now holds 32.2% of the market, will change its name and logo (trademark). PTK Centertel will pay the France Telecom a royalty for the exclusive use of the Orange name.	5 years	1.6%	1.6%	NA
Global Communications International, Inc.	Unical Enterprises, Inc.	An exclusive right to use the following trademarks: Techline, Easytouch, Favorite, Classic Favorite, Classic Favorite Plus, Phototouch, Choice, Competitor, Competitor Plus, Roommate, Plaza, Favorite Plus, Easyreach, Big Button, EZ Button, Cleartech, Favorite Messenger II, Digimate, Mountain Bell. A nonexclusive right to use the following trademarks: B office, Bell Symbol, Bell Mark, Northwestern Bell. All of the above are in connection with corded telephones, cordless telephones, answering machines, and integrated telephone/answering devices.	10 years	2.1%	2.2%	NA
Virgin Enterprises Limited	NTL Inc.	The licensee entered into a trademark license agreement under which it is entitled to use certain Virgin trademarks within the United Kingdom and Ireland related to Internet, television, fixed line telephony, and mobile telephony.	10 years	0.25%	0.25%	£8.5 million minimum annual royalty



Gamma Company Trademarks & Trade Names
 Market Approach—Relief from Royalty Method
 Illustrative CUT Trademark License Transactions (cont.)

Indicated CUT License Agreements Royalty Rate Range		
	Low	High
	Indications	Indications
High Rate	8.0%	8.0%
Low Rate	0.3%	0.3%
Mean Rate	2.9%	3.2%
Median Rate	2.1%	2.2%

Analyst's Selection of the Appropriate Gamma Trademark Royalty Rate = 2%



Gamma Company Trademarks & Trade Names Market Approach—Relief from Royalty Method Valuation Summary as of January 1, 2017

<u>Present Value of Discrete Projection Period</u>	<u>Projected Calendar Years</u>				
	2017	2018	2019	2020	2021
<u>Trademark Royalty Expense Relief:</u>	\$000	\$000	\$000	\$000	\$000
Management-Provided Revenue Projection [a]	8,634,139	8,358,945	8,042,393	7,720,369	7,377,326
Arm's-Length Trademark License Royalty Rate [b]	2%	2%	2%	2%	2%
Projected Pretax Trademark Royalty Relief	172,683	167,179	160,848	154,407	147,547
Less Projected Income Tax Rate [c]	<u>37%</u>	<u>37%</u>	<u>37%</u>	<u>37%</u>	<u>37%</u>
Projected After-Tax Trademark Royalty Relief	108,790	105,323	101,334	97,277	92,954
Discounting Periods [d]	0.5000	1.5000	2.5000	3.5000	4.5000
Present Value Factor @ 11% [e]	<u>0.9492</u>	<u>0.8551</u>	<u>0.7704</u>	<u>0.6940</u>	<u>0.6252</u>
Present Value of Trademark Royalty Relief	<u>103,264</u>	<u>90,061</u>	<u>78,068</u>	<u>67,510</u>	<u>58,115</u>
Sum of Present Values of Trademark Royalty Relief	<u>397,018</u>				



Gamma Company Trademarks & Trade Names Market Approach—Relief from Royalty Method Valuation Summary as of January 1, 2017

Present Value of Terminal Period Trademark Royalty Expense Relief:

Fiscal 2022 Normalized Trademark Royalty Expense Relief [f]	\$92,954
Direct Capitalization Multiple [g]	<u>7.579</u>
Terminal Value of Trademark Royalty Expense Relief	704,498
Present Value Factor @ 11% [e]	<u>0.6252</u>
Present Value of Terminal Value	\$440,452

Trademark Valuation Summary:

Present Value of Discrete Period Trademark Royalty Relief	\$397,018
Present Value of Terminal Period Trademark Royalty Relief	<u>440,452</u>
Fair Value of the Gamma Trademarks (rounded)	<u>\$840,000</u>

Footnotes:

[a] Revenue projection provided by Gamma management and subject to analyst due diligence; this revenue projection is consistent with the company's long-range financial plan.

[b] Based on the analyst's review of arm's-length license agreements between parties for similar intellectual property.

[c] Based on the market participants expected effective income tax rate.

[d] Calculated as if cash flow is received at midyear.

[e] Based on the Gamma weighted average cost of capital.

[f] Based on the 2021 projected after-tax trademark royalty expense relief and an expected long-term growth rate of 0 percent.

[g] Based on a present value of an annuity factor for an 11 percent discount rate and a 15-year expected RUL (after the 5-year projection period).



Delta Company Cost Approach Additional Example

Computer Software Copyright and Trade Secret

RCNLD Method as of January 1, 2017

Delta Company Computer Software System	Estimated Software Development Development Effort—in Person Months	Elapsed Time to Develop Replacement Software—in Calendar Months	Full Absorption Cost per Person Month	Indicated RCNLD Method Component \$000
AS/400	4,531	29	\$14,585	66,100
Point of Sale	575	25	14,585	8,400
Tandem	3,304	16	14,585	48,200
Unisys	1,229	5	14,585	17,900
Pioneer	1,807	41	14,585	26,400
Voyager	325	12	14,585	4,700
Host to Host	<u>85</u>	9	14,585	<u>1,200</u>
Total Direct and Indirect Costs Component (rounded)	11,856	24		172,900
Plus: Developer's Profit, at 16%				<u>27,700</u>
Subtotal				200,600
Plus: Entrepreneurial Incentive, 2 Years of Lost Income				<u>31,200</u>
Equals: Total Replacement Cost New				231,800
Less: Functional Obsolescence				<u>36,900</u>
Equals: Subtotal				194,900
Less: Economic Obsolescence, at 19%				<u>37,000</u>
Equals: Computer Software RCNLD				<u>157,900</u>
Fair Value of Computer Software Copyright and Trade Secret (rounded)				<u>\$158,000</u>



Cost Approach Additional Example Computer Software Copyright and Trade Secret

Delta Company Computer Software Cost Approach Functional Obsolescence

Computer Software System	RCN—Total Direct and Indirect Cost Components \$000	RCN—Developer's Profit and Entrepreneurial Incentive Cost Components	Total RCN Cost Components \$000	Software Percent Functional Obsolescence	Total Functional Obsolescence \$000
Unisys	17,900	34%	24,000	80%	19,200
Pioneer	26,400	34%	35,400	50%	<u>17,700</u>
Total					36,900



Cost Approach Additional Example

Computer Software Copyright and Trade Secret (cont.)

Delta Company Computer Software
Cost Approach Economic Obsolescence

Owner/Operator Financial and Operational Metrics	Average of 2011-2015	LTM 2016	Percent Difference
EBIT Profit Margin	24%	20%	-16.7%
Net Cash Flow Margin	12%	10%	-16.7%
Pretax Net Income Margin	15%	12%	-20.0%
EBIT Return on Total Assets	16%	14%	-12.5%
EBIT Return on Net Assets	20%	16%	-20.0%
5-Year Compound Revenue Growth Rate	6.5%	4.5%	-30.8%
5-Year Compound Net Cash Flow Growth Rate	7.5%	5.5%	-26.7%
Average Sales Price per Unit Sold	\$1,200	\$1,050	-12.5%
Mean Percent Decline in Metrics			-19.5%
Median Percent Decline in Metrics			-18.4%
Trimmed Mean Percent Decline in Metrics			<u>-18.8%</u>
Selected Economic Obsolescence Indication as of 1/1/17			<u>-19%</u>



Epsilon Company—Illustrative Reconciliation of Company WACC to Allocation WARA to Deal IRR

- Assume a total acquisition purchase price of \$7,283,850
- Assume the transaction closes on February 5, 2017
- The analyst performs (and documents) a rigorous review of the acquirer's target company cash flow projections—in order to calculate the transaction price implied internal rate of return (IRR)
- The analyst performs a target company WACC calculation to conclude the discount rate (and capitalization rate) to use in any intangible asset income approach valuation analyses
- The analyst concludes the fair value for all of the acquired net working capital, tangible assets, and intangible assets (including goodwill)
- The analyst concludes the weighted average return on assets (WARA) based on the acquired asset fair value indications
- To confirm the reasonableness of the purchase price allocation, the analyst compares the transaction price IRR to the target company WACC to the acquired asset fair value allocation WARA



Epsilon Company

Illustrative Purchase Price Allocation

Internal Rate of Return Calculation as of February 5, 2017

Acquisition Deal -Related Financial Projections	Projected Fiscal Years Ending December 31,					Normalized
	2017	2018	2019	2020	2021	2021
Present Value of Discrete Period Cash Flow :	\$	\$	\$	\$	\$	\$
Net Operating Income (after tax)	736,209	636,207	654,030	667,110	680,453	680,453
Noncash Charges (i.e., depreciation expense)	3,615	3,723	3,798	3,874	3,951	
Capital Expenditures	(4,016)	(4,137)	(4,220)	(4,304)	(4,390)	
Additions (Reductions) to Net Working Capital	<u>(10,093)</u>	<u>(11,869)</u>	<u>(11,583)</u>	<u>(11,815)</u>	<u>(12,051)</u>	<u>(12,051)</u>
Net Cash Flow	<u>725,715</u>	<u>623,924</u>	<u>642,025</u>	<u>654,865</u>	<u>667,963</u>	<u>668,402</u>
Months Remaining in Initial Projection Year	<u>10.8</u>					
Adjusted Net Cash Flow	677,690					
Discounting Period	0.4517	1.4035	2.4035	3.4035	4.4035	
Deal Present Value Factor @ 11.8%	<u>0.9508</u>	<u>0.8550</u>	<u>0.7647</u>	<u>0.6839</u>	<u>0.6117</u>	
Present Value Discrete Net Cash Flow	644,366	533,453	490,953	447,993	408,591	
Total Present Value of Discrete Net Cash Flow	<u>\$2,525,245</u>					



Epsilon Company

Illustrative Purchase Price Allocation

Internal Rate of Return Calculation as of February 5, 2017 (cont.)

Acquisition Deal-Related Financial Projections	
Present Value of Terminal Period Cash Flow:	
Fiscal 2022 Net Cash Flow (2021 NCF + 2%)	\$681,770
÷ Deal Direct Capitalization Rate (11.8% - 2%)	9.8%
= Terminal Value	6,950,594
Deal Present Value Factor @ 11.8 Percent	0.6117
Present Value of Terminal Cash Flow Value	<u>\$4,251,659</u>
Value Summary:	
Discrete Period Cash Flow Present Value	\$2,525,245
Terminal Period Cash Flow Present Value	<u>4,251,659</u>
Business Enterprise Value	6,776,904
+ Cash and Cash Equivalents	156,946
+ Loan Receivable – from Parent Company	<u>350,000</u>
= Total Transaction Purchase Price	<u>\$7,283,850</u>
Implied Transaction Internal Rate of Return	<u>11.8%</u>
Transaction Price IRR (rounded)	<u>12%</u>



Epsilon Company

Illustrative Purchase Price Allocation

Weighted Average Cost of Capital as of February 5, 2017 (cont.)

Present Value Discount Rate and Direct Capitalization Rate

Cost of Equity Capital:

Model #1: Modified Capital Asset Pricing Model:	Source:
Risk-Free Rate of Return	2.3%
General Equity Risk Premium	6.0%
Multiplied by: Raw Small Composite Industry Levered Beta	<u>0.5</u>
Industry-Adjusted General Equity Risk Premium	3.0%
Size Equity Risk Premium	<u>5.6%</u>
Indicated Cost of Equity Capital	<u>10.9%</u>
Source: 20-year Treasury bond, <i>The Federal Reserve Statistical Release</i> , as of February 5, 2017 Duff & Phelps, LLC, <i>2017 Valuation Handbook: Guide to Cost of Capital</i> Duff & Phelps, LLC, <i>2017 Valuation Handbook Industry Cost of Capital</i> , SIC code 36 Duff & Phelps, LLC, <i>2017 Valuation Handbook: Guide to Cost of Capital</i> , decile 10	
Model #2: Build-Up Model:	Source:
Risk-Free Rate of Return	2.3%
General Equity Risk Premium	6.0%
Industry Equity Risk Premium	0.3%
Size Equity Risk Premium	<u>5.6%</u>
Indicated Cost of Equity Capital	<u>14.2%</u>
Source: 20-year Treasury bond, <i>The Federal Reserve Statistical Release</i> as of February 5, 2017 Duff & Phelps, LLC, <i>2017 Valuation Handbook: Guide to Cost of Capital</i> Duff & Phelps, LLC, <i>2017 Valuation Handbook Industry Cost of Capital</i> , SIC code 36 Duff & Phelps, LLC, <i>2017 Valuation Handbook: Guide to Cost of Capital</i>	
Selected Cost of Equity Capital	12.5%
Average of Models #1 - #2	



Epsilon Company

Illustrative Purchase Price Allocation

Weighted Average Cost of Capital as of February 5, 2017 (cont.)

Present Value Discount Rate and Direct Capitalization Rate

Cost of Debt Capital:

		Source:
Before-Tax Cost of Debt Capital	5.4%	<i>Moody's Baa Corporate Bond Yield</i> , as of February 5, 2017
Income Tax Rate	38%	Based on the blended federal and state effective income tax rate
Selected Cost of Debt Capital	<u>3.3%</u>	

Weighted Average Cost of Capital Calculation:

		Source:
Selected Cost of Equity Capital	12.5%	
Multiplied by: Equity/Invested Capital (based on SIC code 36)	99.0%	<i>Duff & Phelps 2017 Valuation Handbook: Industry Cost of Capital</i> , SIC code 36
Equals: Weighted Cost of Equity Capital	<u>12.4%</u>	
Selected Cost of Debt Capital	3.3%	
Multiplied by: Debt/Invested Capital (based on SIC code 36)	<u>1.0%</u>	<i>Duff & Phelps 2017 Valuation Handbook: Industry Cost of Capital</i> , SIC code 36
Equals: Weighted Cost of Debt Capital	<u>0.03%</u>	

Weighted Average Cost of Capital (rounded)	12%	
Less: Expected Long-Term Growth Rate (rounded)	<u>2%</u>	
Equals: Direct Capitalization Rate (rounded)	<u>10%</u>	



Epsilon Company
 Illustrative Purchase Price Allocation
 Weighted Average Cost of Capital as of February 5, 2017 (cont.)

Acquired Net Assets Subject to Valuation	Fair Value Conclusion \$	Required Rate of Return	Weighted Return of Assets
Net Working Capital	947,324	3%	0.4%
Loan Receivable – from Parent Company	350,000	0%	0.0%
Fixed Assets, Net	58,920	6%	0.0%
Trained and Assembled Workforce	241,400	12%	0.4%
Trademarks and Trade Names	1,103,700	12%	1.9%
Patents	165,900	12%	0.3%
Customer Relationships	2,977,100	12%	5.1%
Goodwill (excluding assembled workforce)	<u>1,439,506</u>	22%	<u>4.3%</u>
 Total Net Assets (equals purchase price)	 <u>7,283,850</u>		
 Weighted Average Return on Assets (rounded)			 <u>12%</u>
 Weighted Average Cost of Capital (rounded)			 <u>12%</u>
 Transaction Price Internal Rate of Return (rounded)			 <u>12%</u>



Attributes of an Intangible Asset Fair Value Valuation Report

- In order to encourage the reader's acceptance and to comply with the Mandatory Performance Framework, the intangible asset fair value valuation report should be:
 - clear, convincing, and cogent
 - well-organized, well-written, and well-presented
 - free of grammar, punctuation, spelling, and mathematical errors
 - procedurally and mathematically replicable, without the use of any unexplained or unsourced valuation variables



Attributes of an Intangible Asset Fair Value Valuation Report (cont.)

- Whether the report is a “comprehensive valuation report” or an “abbreviated valuation report,” the intangible asset fair value valuation report should tell a narrative story that:
 - defines the valuation analyst’s assignment,
 - describes the analyst’s data gathering and due diligence procedures,
 - justifies the analyst’s selection of (and rejection of) each of the generally accepted valuation approaches, methods, and procedures,
 - explains how the analyst performed the valuation synthesis and reached the final value conclusion,
 - defends the analyst’s intangible asset value conclusion, and
 - describes all of the data sources that the analyst relied on (and includes copies of nonpublic source documents)



Intangible Asset Valuation Report Errors to Avoid

- An intangible asset fair value valuation report should avoid these common errors:
 - Failure to apply the defined standard of value
 - Failure to apply the defined premise of value
 - Analytical internal inconsistencies
 - Arithmetic errors in the valuation analysis
 - Insufficient support for the selected valuation variables
 - Reliance on industry or other rules of thumb
 - Insufficient data and inadequate market research
 - Inadequate due diligence procedures



Summary and Conclusion

- Types of identifiable intangible assets (and what is not an intangible asset)
- Financial accounting reasons to conduct the intangible asset valuation
- Elements of the intangible asset valuation
- Illustrative cost approach valuation analysis
- Illustrative income approach valuation analysis
- Illustrative market approach valuation analysis
- Valuation synthesis and conclusion considerations
- Documenting the intangible asset valuation variables in the valuation work file
- Reporting the results of the intangible asset fair value valuation

