Intangible Asset Analysis—Litigation Valuations and Fair Value Measurements

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Discussion Outline

- Reasons to value intangible assets
- Valuations and fair value measurements
- Generally accepted valuation approaches and methods
- Reasons to apply the cost approach
- Cost approach valuation methods
- Cost measurement procedures
- Physical deterioration measurement procedures
- Functional obsolescence measurement procedures
- Economic obsolescence measurement procedures
- Cost approach value conclusion
- Tax amortization benefit adjustment
- Cost approach application common misapprehensions
- Illustrative example

Reasons to Estimate Intangible Asset Value

- Transaction pricing and structuring
- Financing collateralization and securitization
- Taxation planning and compliance
- Regulatory compliance and corporate governance
- Bankruptcy and reorganization
- Strategic planning and management information
- Fair value measurements and financial accounting
- Forensic analysis and dispute resolution

Fair Value Measurement and Financial Accounting Reasons

- Preparing the acquisition accounting purchase price allocation for tangible assets and intangible assets (FASB ASC 805, *Business Combinations*)
- Testing for goodwill and other intangible asset impairment (FASB ASC 350, *Intangibles—Goodwill and Other*, and FASB ASC 360, *Property, Plant, and Equipment*)
- Preparing the post-bankruptcy "fresh start" accounting for the entity's tangible and intangible assets (FASB ASC 852, *Reorganizations*)
- FVM of portfolio company intangible asset investments for investment company financial accounting (FASB ASC 946, *Financial Services—Investment Companies*)

Forensic Analysis and Dispute Resolution Reasons

- Calculating intangible asset lost profits, reasonable royalty rate, or other damage measurements related to infringement or other tort claims
- Measuring intangible asset lost profits or other damages related to breach of contract, license, or noncompete/ nondisclosure agreement claims
- Estimating the owner/operator's intangible asset value in condemnation, expropriation, eminent domain, or dissipation of corporate asset claims

Attributes of an Intangible Asset

- An intangible asset should be (1) intangible and (2) an asset
  - Intangible—its economic benefits are not derived from its physical elements
  - An asset—it should provide future economic benefits to its owner

Attributes of an Intangible Asset (cont.)

- An intangible asset should have certain attributes or characteristics:
  - It is subject to a specific identification and a 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
  - It is documented by some tangible evidence or manifestation of its existence
  - It is created or 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

Attributes of an Intangible Asset (cont.)

- There should be a specific bundle of legal rights associated with an intangible asset

Elements of the Intangible Asset Valuation Assignment

- The typical elements of an intangible asset valuation assignment include the following:
  - Objective and purpose of the valuation
  - Standard of value
  - Premise of value
  - Valuation date
  - Description of the subject intangible asset
  - Description of the subject bundle of legal rights
  - Parties that might rely on the valuation
  - Identification of any special reporting requirements

Other Types of Intangible Asset Analyses

- The analyst should be aware that the client may really need some type of intangible asset analysis other than a valuation
- Such other intangible asset assignments include analyses of:
  - A license royalty rate
  - An arm's-length price (transfer price)
  - A damages measurement due to an infringement (or other tort) or breach of contract
  - The fairness of a proposed transaction
  - An exchange ratio when properties other than cash are being transferred
  - A useful economic life estimate

Valuations and Fair Value Measurements

- Valuations are judgment-based analyses
  - The analyst applies professional judgment to select and apply any generally accepted valuation approaches, methods, and procedures
- Fair value measurements are rules-based analyses
  - The analyst follows the professional guidance of FASB ASC 820, *Fair Value Measurements*
- In FVMs, analysts typically comply with the *Mandatory Performance Framework*
  - Compliance with the MPF is required for analysts who hold the Certified in Enterprise and Intangible Valuations credential
  - Compliance with the MPF is considered a best practice for all CPAs

Valuations and Fair Value Measurements (cont.)

- In addition, to the MPF, the *Application of the Mandatory Performance Framework for the Certified in Entity and Intangible Valuations Credential* provides specific guidance on applying the MPF to FVMs
- The *Application* includes specific guidance related to various FVM topics, including:
  - The application of the TAB adjustment
  - Derivation of the discount rate
  - Application of valuation discounts and premiums
  - Useful economic life measurement
  - Assembled workforce valuation
  - Reconciliation of alternative intangible asset value indications

Generally Accepted Intangible Asset Valuation Approaches

- Intangible asset valuation methods may be categorized into three approaches
- Some of the typical income approach, market approach, and cost approach methods follow
- Income approach methods
  - Multiperiod excess earnings method
  - Capitalized excess earnings method
  - Incremental income method
  - Differential income method
  - Profit split method
- Market approach methods
  - Relief from royalty method
  - Direct sales comparison method
- Cost approach methods
  - Replacement cost new less depreciation method
  - Reproduction cost new less depreciation method
  - Trended historical cost less depreciation method

Data Gathering and Due Diligence Procedures

- Some data gathering and due diligence procedures relate to all valuation approaches
- The analyst considers the following intangible asset development and current use information:
  - The owner/operator's historical and prospective financial statements
  - The owner/operator's historical and prospective intangible asset development and maintenance costs
  - Any current and expected owner/operator resource/capacity constraints

Data Gathering and Due Diligence Procedures (cont.)

- A description of intangible asset economic benefits to the current owner/operator:
  - Any associated revenue increase (product unit price/volume, market size/position)
  - Any associated expense decrease (product returns; cost of goods sold; selling, general, and administrative; research and development)
  - Any associated investment decrease (inventory and capital expenditures)
  - Any associated risk decrease (the existence of any intangible asset licenses or contracts, a decrease in cost of capital components, intangible asset defensive use)
  - Any assessment of the impact of the intangible asset on the owner/operator's strategic/competitive strengths, weaknesses, opportunities, and threats

Reasons to Apply the Cost Approach

- The cost approach may be applicable when income approach and/or market approach data are not available
- Certain intangible assets lend themselves to application of the cost approach:
  - Recently developed (as in, relatively new) intangible assets
  - Intangible assets that are fungible or may be easily exchanged or substituted
  - Intangible assets for which the owner/operator's historical development cost data are available
  - Intangible assets that are operated by an owner with the expertise to assist the analyst to estimate current development cost
  - Intangible assets that are operated by an owner with the expertise to assist the analyst to estimate (1) UEL and (2) obsolescence
  - Intangible assets that are used (or used up) in the production of income but which themselves do not produce any income; examples of such contributory intangible assets include product formulae, employee or workstation training/operator manuals, operating procedures, computer software, an assembled workforce)

Reasons to Apply the Cost Approach (cont.)

- When selecting the cost approach, the analyst should consider whether there are sufficient reliable data available to estimate:
  - A current cost measurement (such as replacement cost new or reproduction cost new) and
  - All forms of depreciation and obsolescence (including economic obsolescence)
- The obsolescence estimate often involves an analysis of the intangible asset UEL

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Best Practices in Intangible Asset Valuation — Cost Approach Methods and Procedures

AICPA Business Valuations Committee

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Cost Approach Valuation Methods

- Replacement cost new less depreciation method (RCNLD)
  - The hypothetical asset replaces the functionality or the utility of the actual intangible asset
  - Functionality is an engineering concept
  - Utility is an economic concept
  - The new replacement intangible asset does not compete with the actual/seasoned intangible asset
- Reproduction cost new less depreciation method (RPCNLD)
  - Assumes a duplicate of the actual intangible asset
  - All current obsolescence is included in the reproduction intangible asset

Cost Approach Valuation Methods (cont.)

- Trended historical cost less depreciation method (THCLD)
  - Assumes comprehensive historical cost data are available
  - Assumes a duplication of intangible asset development costs—inflated to current costs
  - One indication of RPCNLD
- All cost approach methods model a willing buyer/market participant's make versus buy decision
- All cost approach methods estimate the future costs avoided by buying the seasoned intangible asset—and not the historical costs incurred to develop the seasoned intangible asset

Current Cost Metrics

- All intangible asset cost measurements should consider all cost components, including:
  - Direct costs (such as materials, labor, and supplies)
  - Indirect costs (such as engineering and design expenses and legal and consulting fees)
  - Developer's profit (e.g., a profit margin percentage applied to the direct cost and indirect cost investment)
  - An opportunity cost/entrepreneurial incentive (a measure of lost income or other opportunity cost during the development period)

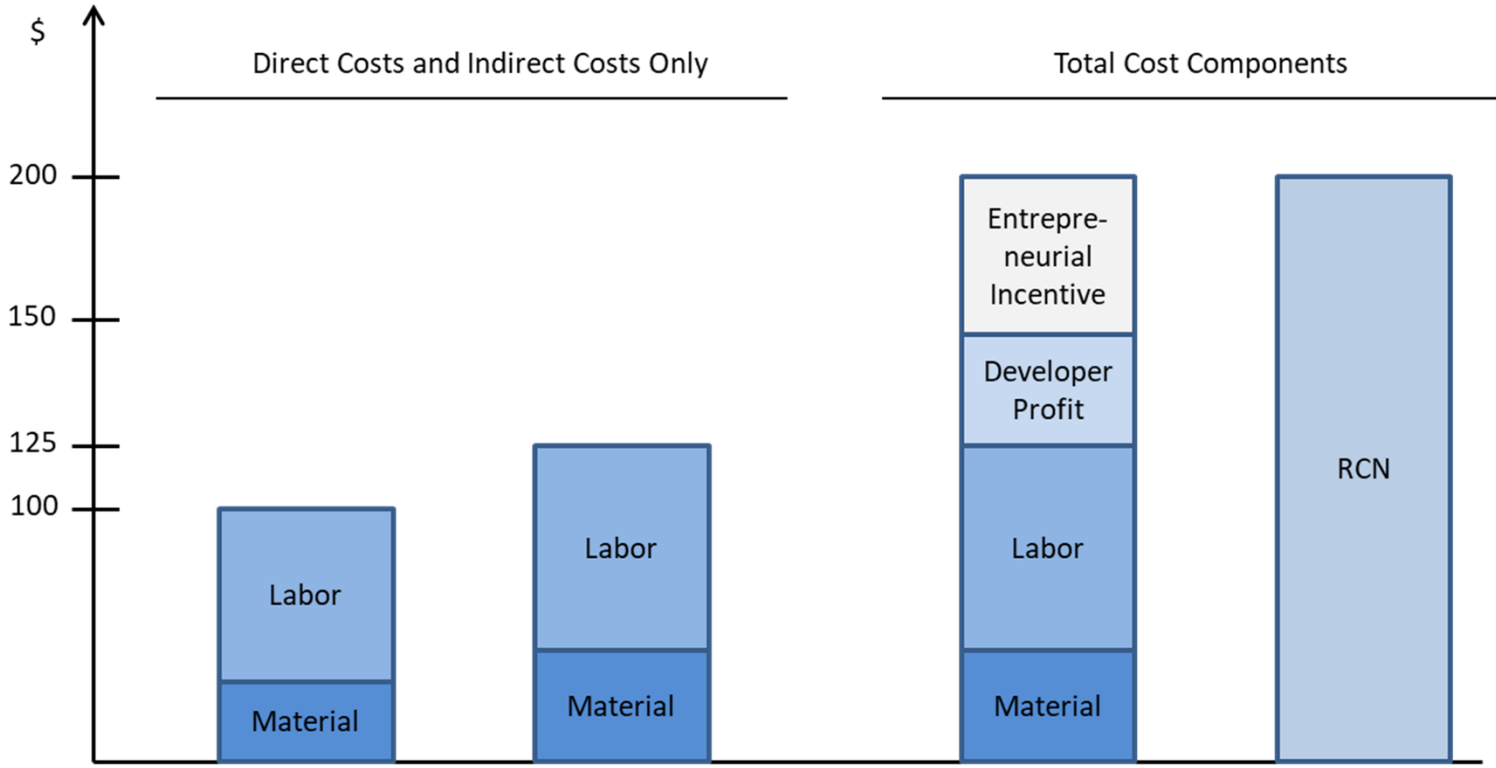
Depreciation/Obsolescence Metrics

- All cost approach analyses should consider all forms of property depreciation:
  - Physical deterioration
  - Functional obsolescence
  - External obsolescence
- Consideration of physical deterioration in an intangible asset analysis
- Consideration of functional obsolescence in an intangible asset analysis
  - Excess capital costs
  - Excess operating costs
- Consideration of external obsolescence in an intangible asset analysis
  - Locational obsolescence
  - Economic obsolescence

Intangible Asset UEL Analysis—Depreciation

- Some factors that the analyst may consider in the intangible asset UEL analysis include:
  - Legal factors
  - Regulatory factors
  - Contractual factors
  - Functional factors
  - Technological factors
  - Economic factors
  - Analytical factors
- The analyst typically considers each of the factors that influence the intangible asset UEL
- Typically, the factor that indicates the shortest UEL deserves primary consideration in the UEL estimate

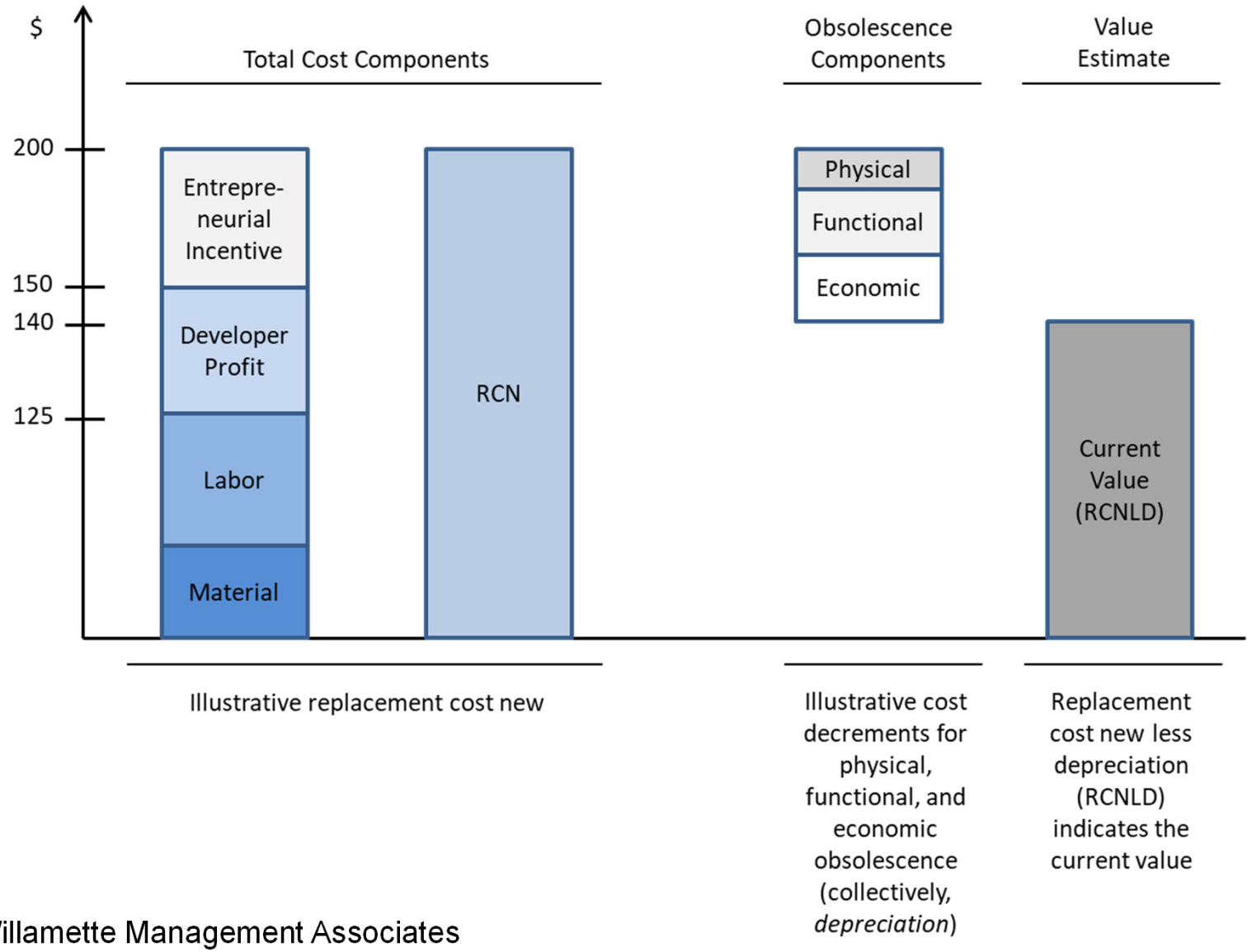
Comparison of Historical Cost to RCN in the Intangible Asset Development Process



Typically, the owner/operator accounting data capture (at most) the direct and indirect costs associated with the subject intellectual property historical development

The replacement cost new considers: direct costs, indirect costs, developer's profit, and entrepreneurial incentive (or opportunity cost) associated with the replacement intellectual property

Comparison of RCN to Current Value in the Intangible Asset Development Process



Illustrative Example

- The not-for-profit Gamma Hospital intends to purchase the physician-owned Beta Group internal medicine practice
- The Gamma board retains the analyst to ensure that Gamma does not pay more than FMV for the Beta assets
- The analyst has to estimate the FMV of all of the Beta assets as of the 12/31/20 valuation date
- One of the practice intangible assets is the Beta 50-person assembled workforce
- The analyst decides to apply the cost approach and the RCNLD method to estimate the FMV of the Beta workforce of 10 physicians, 20 clinical staff, and 20 administrative staff

Beta Group
Trained and Assembled Workforce
Cost Approach, RCNLD Method
Replacement Cost New
as of December 31, 2020

Beta 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: Recruit Replacement Employees	Hire Replacement Employees	Train Replacement Employees	Percent of Full Absorption Cost to Replace Employees	Average RCN Component	Total RCN Component
Physicians	10	180,000	1.6	288,000	20%	20%	40%	80%	230,400	$2,304,000
Clinical Staff	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										10%
Developer's Profit Cost Component (rounded)										365,000
Total Direct Cost and Indirect Cost 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 (ROI)					16%					
Required ROI for 6-Month Replacement Period					8%					
Entrepreneurial Incentive (i.e., $2,009,000 × 8%) (rounded)					$161,000					161,000
Total Replacement Cost New										$4,178,000

Beta Group Depreciation and Obsolescence

- Two Beta clinical staff will retire next year.
- One Beta admin staff is on disability leave and is not expected to return.
- The practice is also overstaffed by two admin positions.
- Due to their long tenure, the average clinical staff salary is $60,000. The 20-person clinical staff could be replaced with sufficiently experienced employees earning a $50,000 salary.
- The analyst considers these facts in measuring physical deterioration and functional obsolescence.
- The analyst also has to consider if Beta Group experiences any economic obsolescence.

Beta Group
Trained and Assembled Workforce
Physical Deterioration
as of December 31, 2020

Beta Assembled Workforce Component	No. of Employees	Average Direct and Indirect RCN	Total Direct and Indirect RCN	Developer's Profit and Entrepreneurial Incentive Cost Components	Total RCN	Percent Depreciation	Accumulated Depreciation
Clinical Staff	2	$45,000	$90,000	$13,000	$103,000	100%	$103,000
Administrative Staff	1	22,400	22,400	3,200	25,600	100%	25,600
Total				16,200	128,600		$128,600

Beta Group
Trained and Assembled Workforce
Functional Obsolescence
as of December 31, 2020

Workforce Component	No. of Employees	Excess Direct and Indirect RCN	Excess Developer's Profit and Entrepreneurial Incentive Components	Excess Total Replacement Cost per Employee	Functional Obsolescence
Clinical Staff	18	$7,500	$1,100	$8,600	$154,800
Administrative Staff	2	22,400	3,200	25,600	51,200
Total					$206,000

Beta Group
Trained and Assembled Workforce
Cost Approach
RCNLD—Before Economic Obsolescence
as of December 31, 2020

Cost Approach Analysis	Cost Component
RCN (all employees)	$4,178,000
Less: Physical Deterioration Allowance (inadequate staff)	128,600
Less: Functional Obsolescence Allowance (superadequate staff)	206,000
Equals: RCNLD—before Economic Obsolescence	$3,843,400

Owner/Operator Conditions That Indicate Intangible Asset Economic Obsolescence

- The entity's income approach value is less than the entity's asset-based approach value
- The entity's market approach value is less than the entity's asset-based approach value
- The owner/operator's revenue has decreased in recent years
- The owner/operator's profitability has decreased in recent years
- The owner/operator's cash flow has decreased in recent years
- The owner/operator's product/service pricing has decreased in recent years
- The industry/profession's revenue has decreased in recent years
- The industry/profession's profitability has decreased in recent years

Owner/Operator Conditions That Indicate Intangible Asset Economic Obsolescence (cont.)

- The industry/profession's cash flow has decreased in recent years
- The industry/profession's product/service pricing has decreased in recent years
- The owner/operator's profit margins have decreased in recent years
- The owner/operator's ROIs have decreased in recent years
- The industry/profession's profit margins have decreased in recent years
- The industry/profession's ROIs have decreased in recent years
- The industry/profession's competition has increased in recent years
- The industry/profession has experienced regulatory changes in recent years

Economic Obsolescence Measurement

- To measure economic obsolescence, the analyst considers the owner/operator financial and operational data:
  - Financial statements or financial results of operations
  - Financial budgets, plans, projections, or forecasts
  - Production statements, production cost analyses, or operating cost variance analyses
  - Material, labor, and overhead cost of goods sold (or services delivered) analyses
  - Fixed versus variable expense operating statements
  - Cost/volume/profit analyses
  - Unit/dollar—sales analyses or average selling price analyses

Economic Obsolescence Measurement (cont.)

- The analyst considers the owner/operator data on a comparative basis, such as the following:
  - Actual results versus historical results
  - Actual results versus budgeted results
  - Actual results versus specific comparative entity results
  - Actual results versus specific competitor results
  - Actual results versus industry/profession average or benchmark results
  - Actual results versus the owner/operator's practical or normal production capacity

Beta Group
Trained and Assembled Workforce
Cost Approach Analysis
Selected Economic Obsolescence Data
as of December 31, 2020

Item	Financial or Operational Performance Metric	LTM Ended 12/31/20	Benchmark Measure	LTM Metric Percentage Deficiency	Benchmark Comparison Reference Source
1	Average Collected Revenue per Physician	$340,000	$420,000	19%	2020 Regional Internal Medicine Group Average
2	Number of Support Staff per Physician	4.0	3.2	25%	2020 Regional Internal Medicine Group Average
3	Average Salary per Physician	$180,000	$220,000	18%	2020 Regional Internal Medicine Group Average
4	Annual Growth Rate in the Practice Revenue	3.5%	4.5%	22%	Actual Subject Practice Average for 2016–20
5	Profit Contribution per Physician (pre-MD comp.)	$200,000	$280,000	29%	2020 Regional Internal Medicine Group Average
6	Profit Contribution Margin (pre-MD comp.)	59%	67%	12%	2020 Regional Internal Medicine Group Average
7	Average Patients Seen per Physician per Day	8.2	10	18%	The 2020 Subject Practice Budget
8	Average Revenue Billed per Patient Visit	$80	$100	20%	The 2020 Subject Practice Budget
9	Return on the Practice's Average Assets	10%	12.5%	20%	Actual Subject Practice Average for 2016–20
10	Return on the Practice's Average Equity	20%	25%	20%	Actual Subject Practice Average for 2016–20

LTM Benchmark Performance Metric Percentage Deficiency:

Mean Deficiency	20.3%
Median Deficiency	20.0%
Mode Deficiency	20.0%
Trimmed Mean Deficiency	20.3%
Trimmed Median Deficiency	20.0%
Selected Economic Obsolescence Indication	20%

Beta Group
Trained and Assembled Workforce:
Economic Obsolescence Allowance
as of December 31, 2020

	Cost Approach Analysis	Cost Component
	RCNLD—before Economic Obsolescence	$3,843,400
Multiplied by:	Selected Economic Obsolescence Percentage	20%
Equals:	Economic Obsolescence Allowance (rounded)	$768,700

Beta Group
Trained and Assembled Workforce:
Cost Approach
Valuation Synthesis and Conclusion
as of December 31, 2020

Cost Approach Analysis	Cost Component
RCN	$4,178,000
Less: Physical Deterioration	128,600
Less: Functional Obsolescence	206,000
Less: Economic Obsolescence	768,700
Equals: RCNLD	3,074,700
FMV of the Assembled Workforce (rounded)	$3,100,000

Beta Group
Total Operating Assets:
Asset-Based Approach — Asset-Accumulation Method
Valuation Synthesis and Conclusion
as of December 31, 2020

Asset	Fair Market Value
Tangible Personal Property	$5,000,000
Intangible Personal Property:	
Patient Relationships	2,000,000
Patient Charts and Records	1,500,000
Training and Procedure Manuals	500,000
Trained and Assembled Workforce	3,100,000
Goodwill	900,000
FMV of the Beta Total Operating Assets	$13,000,000

Tax Amortization Benefit Adjustment

- It is generally inappropriate to add a TAB adjustment to an intangible asset cost approach value indication.
- The purpose of the TAB adjustment is to correct the cash flow projection and the income tax expense (both for amortization expense deductions) in an income approach analysis.
- There is no cash flow projection and no income tax expense/rate in a cost approach analysis.
- The cost approach measures future expenditures a willing buyer will not have to make because it bought (and didn't have to develop) the intangible asset.
- The cost approach considers expenditures—not pretax or after-tax expenses.
- The Appraisal Foundation *Appraisal Practices Board VFR Valuation Advisory 2: The Valuation of Customer-Related Assets* and the *Application of the MPF* both agree that a TAB adjustment is only appropriate in an intangible asset FVM that applies the income approach.

The TAB Adjustment and FVMs

- Some clients—or their auditors—may request that the analyst apply a TAB adjustment in an intangible asset FVM that applies the cost approach.
- This formula quantifies that TAB adjustment for FVM purposes:

$$TAB = Int * (n/(n-\{(PV(r,n,-1)*(1+r)^{.5)}\}*t)-1)$$

where:

Int	=	Intangible asset value
n	=	Number of years
$\{(PV(r,n,-1)*(1+r)^{.5)}\}$	=	Present value of an annuity of $1 over *n* years, at the *r* present value discount rate
t	=	Income tax rate
r	=	Present-value discount rate

TAB Adjustment Illustrative Example

- The analyst is asked to conclude the FVM of the acquisition target Epsilon Company's internally developed computer software.
- The analyst applies the cost approach and the RCNLD method to estimate the software FMV at $1,800,000.
- The client requests the analyst to add a TAB adjustment to conclude an FVM.
- The client's income tax rate is 38% and discount rate is 17.5%.
- The analyst makes the TAB adjustment, as presented on the next page.

TAB Adjustment Illustrative Example (cont.)

Epsilon Company
Acquired Computer Software
FVM TAB Adjustment
As of December 31, 2020

Cost Approach Fair Value Measurement Component		$
Computer Software RCNLD		1,800,000
Plus: TAB Adjustment:		
Number of Years (n) =	15	
Income Tax Rate (t) =	38%	
Present Value Discount Rate (r) =	17.5%	
Multiplied by: TAB Adjustment	16.7%	300,200
Equals: Fair Value of the Computer Software (rounded)		2,100,000

Common Misapprehensions regarding the Cost Approach

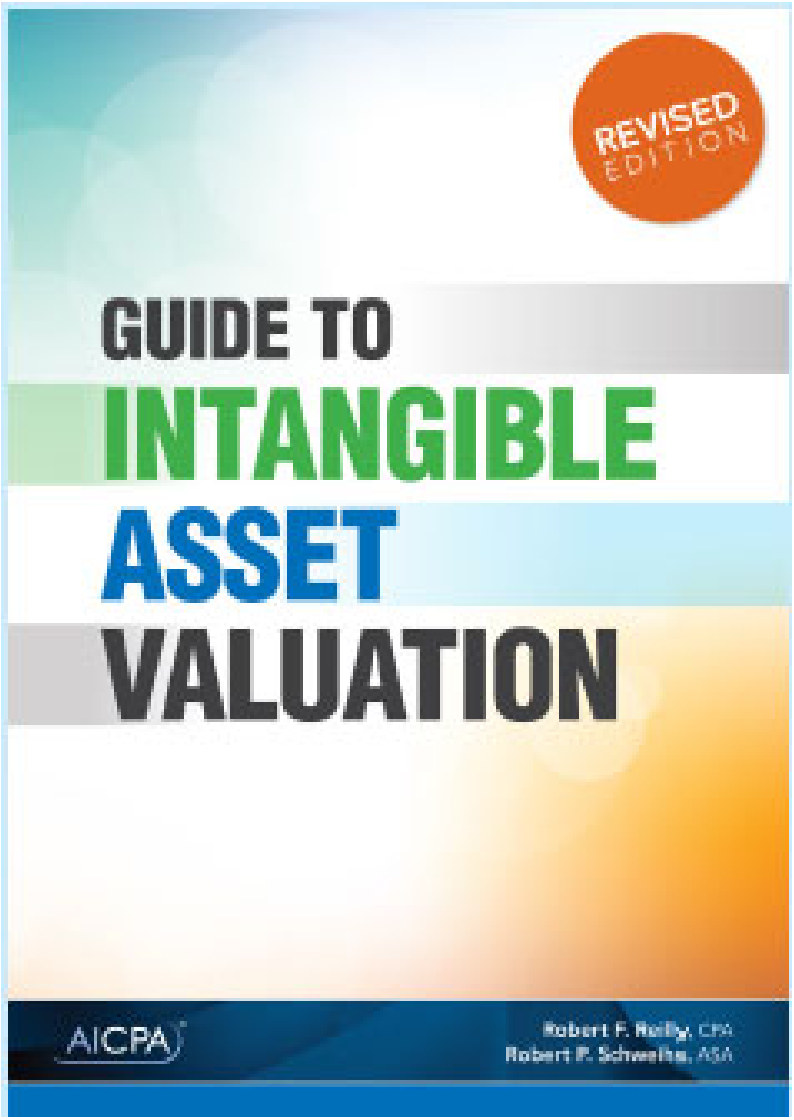
- The cost approach does not consider net book value
- Net book value is not a cost approach value indication
- The cost approach is not the same as historical cost
- The cost approach considers future (not historical) expenditures to develop a replacement intangible asset
- The so-called cost savings method is not a cost approach method
- The cost approach considers expenditures—not pretax or after-tax period expenses
- The cost approach considers opportunity cost
- The cost approach analysis considers all four cost components

Common Misapprehensions regarding the Cost Approach (cont.)

- The cost approach analysis considers all three depreciation and obsolescence components
- The cost approach analysis should be independent of the income approach or the market approach analyses
- The cost approach should not include a TAB adjustment—other than in FVMs for financial accounting purposes

Summary and Conclusion

- We considered the valuation of—and the fair value measurement of—intangible assets
- We considered when to apply the cost approach to value intangible assets
- We considered why to apply the cost approach to value intangible assets
- We considered how to apply the cost approach to value intangible assets
- We considered an illustrative example of the application of the cost approach to value intangible assets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