

The Fair Value Valuation of Intangible Assets for Acquisition Accounting Controversy Purposes – Part 2

In the last issue of *FVLE*, discussions summarized many of the forensic analyst's considerations in a review of the acquisition accounting intangible asset valuation. The following discussions present illustrative examples of typical income approach and cost approach intangible asset fair value valuations. These fair value valuation analyses are presented for illustrative purposes only. They are not presented as a template for the application of these intangible asset acquisition accounting valuation analyses.

INCOME APPROACH ILLUSTRATIVE EXAMPLE

This illustrative example summarizes an income approach valuation analysis of an acquired customer relationships intangible asset for acquisition accounting purposes. In this example, let's assume that the Alpha Telecommunications Company (Alpha) stock was acquired by Acquiror Telecom Company (Acquiror). The valuation date is January 1, 2017. The Alpha recurring customer relationships are an important intangible asset for that acquired target company.

The stock acquisition transaction will be accounted for as a business combination under the acquisition accounting provisions of ASC 805. Accordingly, fair value is the appropriate standard of value for this intangible asset valuation. Based on the analyst's highest and best use (HABU) analysis, value in continued use is the appropriate premise of value for this intangible asset valuation.

Alpha serves both residential customers (about two-thirds of the Alpha revenue is generated by residential customers) and commercial customers (about one-third of the Alpha revenue is generated by com-

mercial customers). This illustrative example presents the valuation of the residential customer relationships. The valuation of the acquired commercial customer relationship would follow a similar methodology. Of course, the selected valuation variables will be different for the two categories of Alpha customer relationships.

Acquiror retained an analyst to estimate the fair value of its customer relationship intangible asset as of January 1, 2017. The analyst decided to use the income approach and the multiperiod excess earnings method (MEEM) to value the customer relationships intangible asset. This decision regarding the selection of the valuation approach and the valuation method should be supported in the valuation report and in the valuation work papers.

To simplify this example, let's assume that the analyst has already valued the Alpha contributory working capital assets, contributory tangible assets, and the following contributory intangible assets: computer software, proprietary technology, trademarks and trade names, and the trained and assembled workforce.

Let's assume that the analyst performed—and documented—a rigorous due diligence process. Based on that due diligence, the analyst selected the intangible asset valuation variables listed in **Exhibit 1** on page 14.

Exhibit 2 on page 15 summarizes the analyst's income approach multiperiod excess earnings method valuation analysis of the Alpha customer relationships intangible asset.

Exhibit 3 on page 16 presents the supporting detail for the analyst's assessment of the Alpha residential customer relationships historical turnover (also called customer "churn") rate.



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Exhibit 4 on page 16 presents the analyst's assessment of the operating profit margin valuation variable. The analyst considered this historical profit margin related to the Alpha residential customers. Then, the analyst normalized this historical operating profit margin to remove the selling expenses specifically related to the solicitation of new residential customers.

Exhibit 5 on page 17 summarizes the analyst's projections of depreciation and amortization expense and of capital expenditures with regard to the Alpha residential customer-related revenue. These projections were based on the analyst's assessment of the historical relationships of these financial fundamentals with regard to Alpha.

Exhibit 6 on page 18 summarizes the analyst's projections with regard to the working capital valuation variable. This exhibit summarizes the projection of the changes in the Alpha working capital balance during the expected EUL of the customer relationships. And, this exhibit summarizes the analysis of the contributory asset charge ROI related to the Alpha working capital balance investment.

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This decision regarding the selection of the valuation approach and the valuation method should be supported in the valuation report and in the valuation work papers.

FINANCIAL VALUATION - Fair Value Valuation of Intangible Assets, continued

EXHIBIT 1

Alpha Telecommunications Company
Residential Customer Relationships Valuation
Selected Valuation Variables as of January 1, 2017
(\$000s)

VALUATION ANALYSIS PROJECTION VARIABLES	BASIS FOR THE ANALYST'S VALUATION VARIABLE SELECTION
Total Alpha 2017 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 strategic plan
Customer attrition rate	Based on an average of the actual monthly attrition rates for the period 2013–2016
Economic useful life	Years until the remaining expected customer revenue is less than 5% of the original (valuation date) customer revenue
EBITDA profit margin %	Based on an average of 2012–2016, adjusted for new customer selling expense
Depreciation expense	15% of revenue, based on an average of 2012–2016
Amortization expense	5% of revenue, based on an average of 2012–2016
Income tax rate	Market-derived (market participant) effective income tax rate
Contributory asset charges:	
Working capital charge	Working capital balance = 10% of revenue, based on the 2012–2016 actual average; capital charge % = the 10% Alpha weighted average cost of capital (WACC)
Tangible asset charge	Tangible asset fair value = \$4,800,000, based on a replacement cost new less depreciation (RCNLD) method valuation analysis of the real estate (RE) and tangible personal property (TPP); \$4,800,000 = 80% of total revenue; capital charge % = the 10% WACC
Intangible asset charge	Contributory intangible asset fair value = \$2,000,000 based on the analyst's fair value valuations of the Alpha software, trademarks, technology, and assembled workforce; capital charge % = the 10% WACC; \$200,000 capital charge = 3% of the Alpha total revenue
Capital expenditures	Annual capx = 105% of annual depreciation expense, based on the analyst's due diligence of Alpha management projections; this variable is consistent with the Alpha historical 10-year average relationship
Working capital change	Based on the projected annual change in working capital balance; the balance is based on 10% of the remaining customer revenue
Discount periods	The midyear discounting convention is assumed
Discount rate	Based on the 10% WACC; the WACC equals the valuation conclusion's weighted average return on assets—or WARA (and the acquisition price internal rate of return (IRR)), so the analyst used 10% as the capital charge return on investment (ROI)
Tax amortization benefit factor	Based on 15-year period, 40% income tax rate, and 7.6061 PVAF factor for 15 years at a 10% present value discount rate

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EXHIBIT 2

**Alpha Telecommunications Company
Residential Customer Relationships Intangible Asset
Fair Value Valuation Summary
As of January 1, 2017
(\$'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>
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 Annual 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 %	60%	60%	60%	60%	60%	60%	60%	60%	60%	60%	60%
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)	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%
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%	486,400	384,717	303,886	240,451	190,172	150,281	117,896	91,695	72,323	56,089	44,231
- 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	91,200	72,134	56,979	45,085	46,657	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
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%	0.9524	0.8658	0.7871	0.7155	0.6505	0.5914	0.5376	0.4887	0.4443	0.4039	0.3672
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										
x Tax Amortization Benefit Factor	1.2544										
= Fair Value of the Remaining Customer Relationships (rounded)	2,400,000										

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EXHIBIT 3

Alpha Telecommunications Company
Residential Customer Relationships Valuation
Residential Customer Turnover Rate Analysis

<u>Month</u>	<u>2013</u>	<u>2014</u>	<u>2015</u>	<u>2016</u>
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%
Residential Customer Annual Turnover Rate	24.0%	24.2%	24.2%	23.8%

EXHIBIT 4

Alpha Telecommunications Company
Residential Customer Relationships Valuation
Normalized EBITDA Margin Analysis

	<u>2012</u>	<u>2013</u>	<u>2014</u>	<u>2015</u>	<u>2016</u>	<u>Mean</u>	<u>Median</u>	<u>Selected</u>
Reported EBITDA Profit 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>	
= Normalized EBITDA Profit Margin %	60.2	60.2	60.0	60.4	60.0	60.2	60.2	60%

The historical new customer-related selling expense includes (1) any advertising directed solely to new customers and (2) any new customer promotional expense.

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EXHIBIT 5

**Alpha Telecommunications Company
Projection of the Relationship of
Depreciation/Amortization Expense
and Capital Expenditures
(\$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 Residential 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
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
Capital Expenditures 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>
Capital Expenditures	478,800	378,706	299,139	236,694	187,200	147,932	116,054	90,262	71,193	55,212	43,540
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

Continued on next page

EXHIBIT 6

**Alpha Telecommunications Company
Working Capital
Contributory Asset Charge
(\$'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 Residential 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 as a % of Revenue	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%
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 ROI %	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%
Capital Charge on Working Capital Balance	30,400	24,045	18,993	15,028	11,886	9,393	7,369	5,731	4,520	3,506	2,764
Change in the 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)

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Exhibit 7 on page 21 summarizes the analyst’s projection of the appropriate contributory asset charge ROI with regard to the customer relationships-related tangible asset balance investment.

Exhibit 8 on page 22 summarizes the analyst’s calculation of the appropriate contributory asset charge ROI with regard to the Alpha other (non-customer relationships) intangible assets. The analyst had previously identified and valued the following contributory intangible assets: computer software, trademarks and trade names, proprietary technology, and a trained and assembled workforce.

In summary, the analyst used the multiperiod excess earnings method to estimate the fair value of the Alpha residential customer relationships intangible asset. The analyst projected the intangible-asset-related income over the expected EUL of the residential customer relationships. The analyst present valued this excess income projection to conclude an unadjusted value indication. And, the analyst estimated and added the TAB adjustment in order to conclude the fair value of this acquired intangible asset.

COST APPROACH ILLUSTRATIVE EXAMPLE

This illustrative example summarizes a cost approach valuation analysis of an acquired assembled workforce. The assembled workforce is a common contributory intangible asset considered in many acquisition accounting valuations. In this example, let’s assume that Beta Electric Company (Beta) is an electric generation company that owns and operates an electric generating plant. The Beta stock was acquired by Acquiror Electric Company (Acquiror). The acquisition accounting valuation date was January 1, 2017.

The purchase transaction was accounted for as a business combination under the acquisition accounting provisions of ASC 805. Accordingly, the appropriate standard of value is fair value. Based on the analyst’s

HABU analysis, the appropriate premise of value is value in continued use.

Even though the Beta assembled workforce is not an identifiable intangible asset under ASC 805, the assembled workforce should be valued (1) to properly calculate any appropriate contributory asset charge for any income approach intangible assets and (2) to ensure that the residual amount of goodwill is at least equal to the amount of the implied fair value of the acquired assembled workforce.

Let’s assume that the Beta plant operates with 50 employees. There are three principal staff levels at Beta; let’s call them executives, technicians, and administrative staff.

Acquiror retained an analyst to estimate the fair value of its assembled workforce intangible asset as of January 1, 2017. The analyst decided to use the cost approach and the RPCNLD method to estimate the fair value of the Beta assembled workforce for acquisition accounting purposes.

Exhibit 9 on page 23 summarizes the reproduction cost new (RPCN) component of the Beta assembled workforce RPCNLD method analysis. In this RPCN calculation, the analyst considers all four components of intangible asset cost: direct costs, indirect costs, developer’s profit, and entrepreneurial incentive. The analyst considered all four cost components in the calculation of the current (valuation date) cost to recruit, hire, and train the reproduced Beta assembled workforce.

The analyst’s cost-related due diligence considerations are summarized next.

Reproduction Cost New— Direct Costs and Indirect Costs

The RPCN estimate considers the total compensation paid to each Beta employee, labeled as “average salary” on **Exhibit 9**. These costs are considered to be direct costs. These costs are typically paid to the subject employees. The RPCN estimate considers all of the other expenses that the acquired entity would incur related to each

employee. These other costs are considered indirect costs, including:

- Payroll taxes
- Employee benefits
- Continuing professional education
- Annual license and credential fees
- Uniforms and lab coats
- Employee parties, gifts, etc.

These indirect costs are typically paid on behalf of the subject employees to parties outside of the employer.

The total annual cost that the subject entity pays for an employee is often 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 RPCN includes all of the costs that the employer would incur to recreate the current assembled workforce with a new (but directly comparable) workforce. These costs may include:

- Advertising for recruiting potential new employees to apply for each position
- Interviewing expenses, background checks, and other pre-employment tests; and placement fees incurred to have the new employees show up on their first day of employment
- On-the-job training in the particular position, including first month training, first year training, and accumulated continuing education for the long-term employee

Reproduction Cost New— Developer’s Profit and Entrepreneurial Incentive

There are two additional cost components for the analyst to consider in the RPCN calculation:

1. Developer’s profit
2. 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 an

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independent firm to recreate the subject assembled workforce. Likewise, the assembled workforce owner/operator (i.e., the target company) would expect to earn a profit on the sale of its internally developed intangible assets to the willing buyer corporate acquirer.

There are several generally accepted alternative procedures for estimating the entrepreneurial incentive cost component. One common procedure is to estimate the lost profits-related opportunity cost that the subject entity would experience during the intangible asset recreation period. When using this entrepreneurial incentive measurement procedure, the analyst should appropriately allocate the subject entity's overall operating profit (i.e., the total opportunity cost during the intangible asset recreation period) to all of the recreated intangible assets.

For example, let's assume that the acquired target company has five intangible assets that are valued by reference to the cost approach. The target company's total entrepreneurial incentive (i.e., the recreation period total target company lost profits) should be allocated among the five recreated intangible assets.

Another common entrepreneurial profit measurement procedure is to calculate a fair rate of return on the total of the recreated intangible asset's other cost components (i.e., direct costs, indirect costs, and developer's profit). This is the entrepreneurial profit measurement procedure that is illustrated in **Exhibit 9**.

The Beta assembled workforce RPCN is the sum of all four cost components calculated by the analyst. Now, let's consider the depreciation and obsolescence adjustment to the Beta RPCN calculation.

Illustrative Depreciation Analysis Considerations

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

From the valuation due diligence process, the analyst learned the following facts about the Beta workforce:

1. Two of the Beta technicians are scheduled to retire in the next year or so.
2. One of the Beta administrative staff is out on disability leave and is not expected to return to work.
3. Beta is overstaffed with regard to administrative staff; in addition to the administrative employee who is on disability leave, any market participant willing buyer would be expected to eliminate two of the administrative positions.
4. Beta has experienced very low employee turnover of its technician staff. Because of their long tenure, these technicians earn an average annual salary of \$60,000. If the actual Beta technicians were replaced, they would be replaced with adequately qualified (but less tenured) employees earning an average annual salary of \$50,000.

Exhibit 10 on page 24 summarizes the analyst's physical depreciation analysis with regard to the assembled workforce. Three Beta employees are either not physically on the job—or are not physically needed to be on the job. One employee is on disability leave and is not expected to be replaced. Two of the current employees will retire soon. The market participant acquirer would not pay the target company for workforce reproduction costs that the acquirer will, in fact, have to incur in the very near future. The analyst has to eliminate (through depreciation) the RPCN factor for these three employees from the assembled workforce fair value valuation.

Exhibit 11 on page 24 summarizes the analyst's functional obsolescence analysis. Functional obsolescence includes a value decrement for intangible assets that are either (1) inadequate or (2) superadequate. Beta has two inadequate employees—that is, employees who a market participant acquirer would not continue to employ. An acquirer will not pay a tar-

get company for the RPCN related to these inadequate employees. Beta has 18 superadequate employees—that is, employees who are overtrained, overqualified, and overpaid. An acquirer will not pay a target company for the excess compensation (above replacement level of compensation) level RPCN component for these 18 employees.

For the Beta assembled workforce intangible assets, **Exhibit 12** on page 24 summarizes the analyst's calculation of reproduction cost new less physical depreciation and less functional obsolescence.

This RPCNLD conclusion indicates what a market participant willing buyer would pay to a target company willing seller for this assembled workforce, assuming that there is no economic obsolescence related to this intangible asset. To complete the cost approach analysis, the analyst has to test for economic obsolescence at the intangible asset owner/operator.

Exhibit 13 on page 25 summarizes the analyst's illustrative measure of intangible asset owner/operator economic obsolescence. Based on a rigorous due diligence, the analyst decided that there were six performance metrics that could be used to measure economic obsolescence (if any) at Beta. That due diligence also revealed the appropriate benchmark measures or benchmark time periods that the analyst could use to compare (1) the Beta operations without/before economic obsolescence to (2) the Beta current operations with economic obsolescence.

Exhibit 14 on page 26 summarizes the analyst's calculation of the Beta assembled workforce economic obsolescence amount.

Illustrative Cost Approach Example Conclusion

Exhibit 15 on page 26 summarizes the analyst's cost approach measurement of the fair value of the Beta assembled workforce intangible asset as of the January 1, 2017 valuation date.

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EXHIBIT 7

**Alpha Telecommunications Company
Tangible Assets
Contributory Asset Charge
(\$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 Residential Customer Revenue	3,040,000	2,404,480	1,899,20	1,502,818	1,188,576	939,256	736,854	573,092	452,020	350,555	276,445
Net Tangible Assets as a % 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 Residential 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 ROI %	<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

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EXHIBIT 8

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

<u>Contributory Intangible Assets</u>	<u>Fair Value Estimate</u>
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 – Total Fair Value	2,000,000
x Rate of Return on Contributory Assets	<u>10%</u>
= Contributory Intangible Asset Annual Capital Charge	200,000
÷ Alpha Total Revenue	6,000,000
= Contributory Intangible Asset Capital Charge as a % of Revenue	<u>3%</u>

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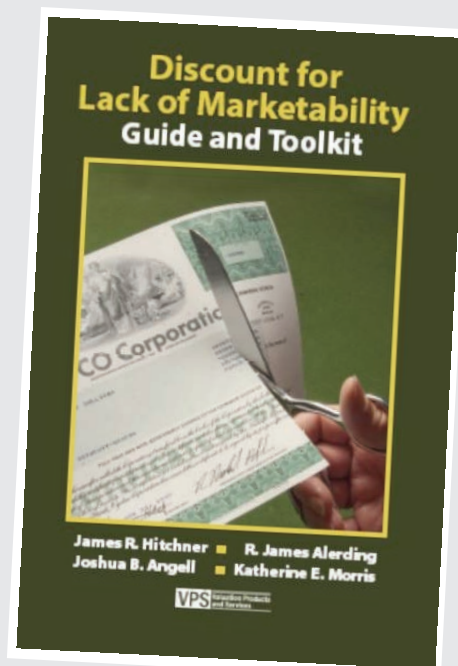


EXHIBIT 9

Beta Electric Company
Trained and Assembled Workforce Valuation
Cost Approach RPCNLD Method
As of January 1, 2017

Beta Assembled Workforce Employee Component	Number of Employees	Average Annual Salary	Other Costs Factor	Percent of Annual Full Absorption Cost				Percent of Full Absorption Cost to Replace Employees	Average Reproduction Cost New Component	Total Reproduction Cost New Component
				Full Absorption Cost	Recruit New Employees	Hire New Employees	Train New Employees			
Executives	10	180,000	1.6	288,000	20%	20%	40%	230,400	\$2,304,000	
Technicians	20	60,000	1.5	90,000	10%	10%	30%	45,000	900,000	
Administrative Staff	20	40,000	1.4	56,000	5%	10%	25%	22,400	448,000	
Total Employees	50									
Total Direct Cost and Indirect Cost Components										
Add: Developer's Profit Cost Component:										
Developer's Profit Margin										
Developer's Profit Cost Component (rounded)										
Total Direct Costs and Indirect Costs and Developer's Profit										
Add: Entrepreneurial Incentive Cost Component:										
Estimated Total Workforce Replacement Period										
Estimated Average Workforce Reproduction Cost Investment (i.e., \$4,017,000 total cost ÷ 2)										
Required Annual Return on Investment										
Required Return on Investment for 6-Month Workforce Recreation Period (16% ÷ 2)										
Entrepreneurial Incentive Cost Component (i.e., \$2,009,000 × 8% [rounded])										
Equals: Total Reproduction Cost New										
									3,652,000	
									<u>10%</u>	
									<u>365,000</u>	
									4,017,000	
									6 Months	
									\$2,009,000	
									16%	
									8%	
									\$161,000	
									<u>161,000</u>	
									\$4,178,000	

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FINANCIAL VALUATION - Fair Value Valuation of Intangible Assets, continued

EXHIBIT 10

**Beta Electric Company
Trained and Assembled Workforce Valuation
Physical Deterioration
As of January 1, 2017**

Assembled Workforce Components	No. of Employees	Average Direct and Indirect Reproduction Cost New	Total Direct and Indirect Reproduction Cost New	Developer's Profit and Entrepreneurial Incentive Cost Components	Total Reproduction Cost New	Percent Depreciation	Equals: 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>	<u>25,600</u>	100%	<u>25,600</u>
Total				16,200	128,600		\$128,600

EXHIBIT 11

**Beta Electric Company
Trained and Assembled Workforce Valuation
Functional Obsolescence
As of January 1, 2017**

Assembled Workforce Components	No. of Employees (A)	Excess Direct and Indirect Reproduction Cost New (B)	Excess Developer's Profit and Entrepreneurial Incentive Cost Component (C)	Excess Total Reproduction Cost New (B + C)	Functional Obsolescence (A x (B + C))
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>

EXHIBIT 12

**Beta Electric Company
Trained and Assembled Workforce Valuation
Cost Approach RPCNLD Method
As of January 1, 2017**

<u>Cost Approach Analysis</u>	<u>Cost Component</u>
Reproduction Cost New (all 50 employees)	\$4,178,000
Less: Physical Deterioration Allowance (limited life staff)	128,600
Less: Functional Obsolescence Allowance (inadequate staff and superadequate staff)	<u>206,000</u>
Equals: Reproduction Cost New less Physical Depreciation and Functional Obsolescence	<u>\$3,843,400</u>

Continued on next page

EXHIBIT 13

**Beta Electric Company
Trained and Assembled Workforce Valuation
Economic Obsolescence
As of January 1, 2017**

Metric Item	Beta Financial or Operational Performance Metric	Beta LTM Ended 12/31/16	Benchmark Measure	LTM Percent Shortfall Compared to Benchmark	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 Beta 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 Beta Average for 2012-2016
6	Return on the Entity Average Equity	20%	25%	20%	Actual Beta Average for 2012-2016
	LTM EO Benchmark Measures Percent Shortfall:				
		- Mean Percent	21.3%		
		- Median Percent	20.0%		
		- Mode Percent	20.0%		
		- Trimmed Mean Percent	20.3%		
		- Trimmed Median Percent	<u>20.0%</u>		
	Economic Obsolescence Percent Indication		<u>20.0%</u>		

Continued on next page

EXHIBIT 14

Beta Electric Company
Trained and Assembled Workforce Valuation
Economic Obsolescence
As of January 1, 2017

<u>Cost Approach Analysis</u>	<u>Cost Approach Component</u>
Reproduction Cost New less Physical Depreciation and Functional Obsolescence	\$3,843,400
x Selected Economic Obsolescence Percent	20%
- Economic Obsolescence Allowance (rounded)	<u>\$768,700</u>

EXHIBIT 15

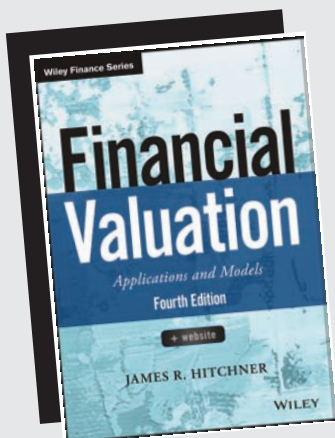
Beta Electric Company
Trained and Assembled Workforce Valuation
Cost Approach Valuation Synthesis and Conclusion
As of January 1, 2017

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

In Issue 71 of *FVLE*, we'll take a look at illustrative examples using the market approach. This three-part series will then conclude with attributes of a fair value report as well as errors to avoid in fair value valuation reports. [↪](#)

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