

## Valuation of AirThread Connections Harvard Case Solution & Analysis

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- extremely competitive with technology constantly changing, changes in regulation, and shifts in competitive dynamics, such as, moving towards bundling more services together for their clients.
- Companies in the industry are taking advantage of efficiency, productivity, cost reduction and increased customer base to boost revenues.
- Many analysts have urged that because of the intense competition within the industry there will only be a few very large providers that will stand the test of time.



**Company Income Statement**

Revenue	1,000,000
Cost of Sales	(400,000)
Operating Expenses	(200,000)
Operating Income	400,000
Interest Expense	(50,000)
Income Before Tax	350,000
Tax Expense	(100,000)
Net Income	250,000

**Free Cash Flow**

Operating Income	400,000
Depreciation	100,000
Capital Expenditures	(100,000)
Change in Working Capital	(50,000)
Free Cash Flow	350,000

**Market Multiple Approach**

Company	Market Cap	Revenue	EV/Revenue
AT&T	1,000,000	1,000,000	1.0x
Verizon	800,000	800,000	1.0x
Sprint	600,000	600,000	1.0x
T-Mobile	400,000	400,000	1.0x
AT&T	1,000,000	1,000,000	1.0x



**Possible Synergies**

Category	Value
Operating Synergies	100,000
Financial Synergies	50,000
Investment Synergies	20,000
Total Synergies	170,000

**Sensitivity Analysis**

Variable	Value
Revenue	1,000,000
Cost of Sales	400,000
Operating Expenses	200,000
Interest Expense	50,000
Tax Expense	100,000
Net Income	250,000

**Recommendations**

Enterprise Value	\$1,170,000
Equity Value	\$770,000
Value of Operating Assets	\$1,170,000
Value of Intangible Assets	\$0
Value of Total Value	\$1,170,000

A pie chart showing the distribution of recommendations. The chart is divided into several segments, with the largest segment being blue.

Questions??



## SWOT analysis of both American Cable Company and AirThread Connections.

### American Cable Communications (ACC) SWOT analysis.

- Strengths: Offers Internet, land lines, and video. Large company that is operating in the telecommunication service provider that has large barriers to entry.
- Weaknesses: No wireless services.
- Opportunities: Room for growth if the company can bundle more services together to capture a larger market.
- Threats: Falling too far behind other telecommunication providers that are offering bundled services and eventually losing market share. There is much competition in the service providing industries of internet, video, and landline.

### Airthread Connections (ATC) SWOT analysis.

- Strengths: offers wireless services. Strong customer service. Strong network assets. Valuable wireless spectrum license.
- Weaknesses: No landline, internet, or video services. Not able to bundle any services together. Higher customer acquisitions and retention costs, because there is no other services to offer. Slowing growth for the company.
- Opportunities: Room for growth if the company can offer more services to capture a larger market and to reduce.
- Threats: Falling behind other providers that are offering bundled services and losing market share. There is much competition in the service providing industries.

#### PESTEL Analysis

- Political: The risk of change in regulations will be the industry. There are no political risks that are particularly high for this industry.
- Economic: The global market is relatively stable, but there are risks of economic downturns. Customers expect high quality services and they are willing to pay for it.
- Social: There is a trend towards more services being provided by the same provider. This is leading to a consolidation of the industry.
- Technological: There is a lot of innovation in the industry, and this is leading to new services being developed. This is leading to a consolidation of the industry.
- Environmental: There is a lot of pressure on the industry to reduce its carbon footprint. This is leading to a consolidation of the industry.
- Legal: There is a lot of regulation in the industry, and this is leading to a consolidation of the industry.

# PESTEL Analysis

- **Political:** The main risk is changes in regulations within the industry. There are no real political risks that are involved with political stability, foreign trade policy, tax policy, labour laws, environmental laws, or trade restrictions.
- **Economical:** The global market is relatively stable, so no real problems are in the foreseeable future.
- **Social:** Customers expect high quality service and that many services can be bundled together. There is a trend for people to be connected to their devices, and the use of the internet is becoming an everyday occurrence for virtually every customer that uses the industry.
- **Technological:** All the equipment used by both companies is very expensive, and technology is constantly evolving in the industry.
- **Environmental:** Every market including telecommunications will be under pressure to become a greener company.
- **Legal:** There is little legal risk in the telecommunications industry.

# Reasons for acquisition



- Benefits from being able to offer bundled services of video, internet, landline, and wireless.
- Merging the clients from both companies and adopting the high quality of customer service that A.T.C. provides to their customers.
- A.C.C. has the equity to buy down some of A.T.C. debt that can make the company more profitable.
- Possible synergies between the companies that could cut costs and increase revenues that makes this deal particularly lucrative.

### Proforma Income Statement

	2007	2008	2009	2010	2011	2012
<b>Revenue</b>	1,214.0	1,200.0	1,214.0	1,214.0	1,214.0	1,214.0
Cost of Sales	(384.0)	(384.0)	(384.0)	(384.0)	(384.0)	(384.0)
<b>Operating Profit</b>	830.0	816.0	830.0	830.0	830.0	830.0
Interest Expense	(10.0)	(10.0)	(10.0)	(10.0)	(10.0)	(10.0)
Income Tax Expense	(10.0)	(10.0)	(10.0)	(10.0)	(10.0)	(10.0)
<b>Net Income</b>	810.0	806.0	810.0	810.0	810.0	810.0
Depreciation	10.0	10.0	10.0	10.0	10.0	10.0
Amortization	10.0	10.0	10.0	10.0	10.0	10.0
Change in Working Capital	(10.0)	(10.0)	(10.0)	(10.0)	(10.0)	(10.0)
<b>Free Cash Flow</b>	820.0	806.0	810.0	810.0	810.0	810.0

### Net Working Capital

	2007	2008	2009	2010	2011	2012
<b>Accounts Receivable</b>	100.0	100.0	100.0	100.0	100.0	100.0
Inventory	100.0	100.0	100.0	100.0	100.0	100.0
Accounts Payable	(100.0)	(100.0)	(100.0)	(100.0)	(100.0)	(100.0)
Other Assets	100.0	100.0	100.0	100.0	100.0	100.0
<b>Net Working Capital</b>	100.0	100.0	100.0	100.0	100.0	100.0

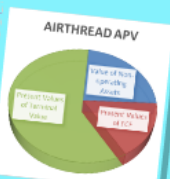
### Free Cash Flows

	2008	2009	2010	2011	2012
<b>FCF</b>	\$245.43	\$277.51	\$354.41	\$386.95	\$454.64
Add: Depreciation & Amortization	\$705.23	\$803.96	\$867.44	\$922.38	\$952.91
Subtotal: Capital Expenditures	\$651.27	\$719.65	\$867.44	\$970.09	\$1,205.01
Subtotal: Net Working Capital	\$20.61	\$19.64	\$19.69	\$19.86	\$19.86
<b>Free Cash Flow FCF</b>	\$281.78	\$391.18	\$354.41	\$333.22	\$218.48
Present Value of FCF	\$276.07	\$501.91	\$360.58	\$290.07	\$252.89
<b>PV of Terminal Value</b>	\$4,605.50				
<b>Enterprise Value</b>	\$5,725.42				



### Adjusted Present Value

	2008	2009	2010	2011	2012
<b>FCF</b>	\$281.78	\$391.18	\$354.41	\$333.22	\$218.48
<b>Interest Tax Savings</b>	\$10.0	\$10.0	\$10.0	\$10.0	\$10.0
<b>Non-operating Assets</b>	\$1,719,630.00				



### Possible Synergies

Midsize Business Subsidiaries						Synergy					
Year	2008	2009	2010	2011	2012	Year	2008	2009	2010	2011	2012
Average Monthly Subscribers (in Millions)	0.70	0.70	0.70	1.00	1.20	Subscriber Conversion	200	200	200	200	200
Average Monthly Revenue	200	200	200	200	200	Subscriber Churn Rate	200	200	200	200	200
Total Monthly Revenue	200	442	478	900	1100	Subscriber Lifetime Value	100	100	100	100	100
Revenue Per Subscriber	\$286	\$286	\$286	\$286	\$286	Subscriber Acquisition Cost	100	100	100	100	100
Annual Revenue Increase (in \$MM)	\$200.00	\$200.00	\$200.00	\$200.00	\$200.00	Subscriber Lifetime Value	100	100	100	100	100

### Market Multiple Approach

Market Multiple	
<b>EBITDA<sub>2007</sub></b>	<b>\$1,676.97</b>
<b>Multiple</b>	<b>9.17</b>
<b>Ke</b>	<b>10.06%</b>
<b>NPV</b>	<b>\$9,522.41</b>
<b>Cash &amp; Equivalents</b>	<b>\$204.53</b>
<b>Marketable Securities</b>	<b>\$16.35</b>
<b>Long Term Debt</b>	<b>\$1,002.29</b>
<b>ACT Equity value</b>	<b>\$8,741.01</b>

### Working capital has also changed

	2007	2008	2009	2010	2011	2012
<b>Accounts Receivable</b>	100.0	100.0	100.0	100.0	100.0	100.0
<b>Inventory</b>	100.0	100.0	100.0	100.0	100.0	100.0
<b>Accounts Payable</b>	(100.0)	(100.0)	(100.0)	(100.0)	(100.0)	(100.0)
<b>Other Assets</b>	100.0	100.0	100.0	100.0	100.0	100.0
<b>Net Working Capital</b>	100.0	100.0	100.0	100.0	100.0	100.0

### APV of Synergy

APV of Synergy	
<b>PV of FCF</b>	<b>\$10,878.74</b>
<b>Non-operating Assets</b>	<b>\$1,719.65</b>
<b>PV of FCF</b>	<b>\$2,395.08</b>
<b>Interest Tax Saving</b>	<b>\$284.78</b>
<b>Enterprise Value with Synergy</b>	<b>\$15,278.25</b>

### Sensitivity Analysis

Growth Rate			Discount Rate		
DCF	APV	Market Multiple	DCF	APV	Market Multiple
Best Case +1%	\$7,302.22	\$6,265.76	\$8,159.95		
Growth Rate	\$5,725.42	\$5,605.46	\$8,741.01		
Worst Case -1%	\$4,192.21	\$4,140.28	\$9,185.65		

### Recommendations

AirThread's Value	
<b>Enterprise value</b>	<b>\$6,564.10</b>
<b>Liquidity Discount</b>	<b>\$760.99</b>



# Proforma Income Statement

Proforma Income Statement								
Year:	2005	2006	2007	2008	2009	2010	2011	2012
Service Revenue	\$2,827.02	\$3,214.41	\$3,679.24	\$4,194.99	\$4,781.54	\$5,379.29	\$5,917.15	\$6,391.95
Plus: Equipment Sales	\$209.74	\$258.75	\$267.09	\$314.57	\$358.62	\$409.44	\$449.79	\$474.85
<b>Total Revenue</b>	<b>\$3,036.77</b>	<b>\$3,473.16</b>	<b>\$3,946.26</b>	<b>\$4,508.90</b>	<b>\$5,140.15</b>	<b>\$5,782.67</b>	<b>\$6,360.94</b>	<b>\$6,806.20</b>
Less: System Operating Expenses	\$604.09	\$639.68	\$717.08	\$838.87	\$956.91	\$1,075.85	\$1,189.49	\$1,266.27
Less: Cost of Equipment Sold	\$511.94	\$568.90	\$640.29	\$755.46	\$861.22	\$968.87	\$1,065.76	\$1,140.96
Less: Selling, General & Administrative	\$1,217.71	\$1,399.56	\$1,555.64	\$1,809.64	\$2,056.15	\$2,319.17	\$2,544.49	\$2,722.60
<b>EBITDA</b>	<b>\$697.02</b>	<b>\$865.01</b>	<b>\$1,039.99</b>	<b>\$1,110.94</b>	<b>\$1,266.47</b>	<b>\$1,424.78</b>	<b>\$1,567.26</b>	<b>\$1,676.97</b>
Less: Depreciation & Amortization	\$490.09	\$555.59	\$582.27	\$705.29	\$809.96	\$867.44	\$922.98	\$952.91
<b>EBIT</b>	<b>\$206.93</b>	<b>\$309.48</b>	<b>\$451.06</b>	<b>\$405.71</b>	<b>\$462.51</b>	<b>\$557.34</b>	<b>\$644.88</b>	<b>\$724.06</b>
Less: Taxes	\$95.86	\$120.60	\$216.71	\$162.29	\$185.00	\$222.94	\$257.95	\$289.62
<b>Net Income</b>	<b>\$154.95</b>	<b>\$179.49</b>	<b>\$314.79</b>	<b>\$249.49</b>	<b>\$277.51</b>	<b>\$334.41</b>	<b>\$386.99</b>	<b>\$434.44</b>

## Net Working Capital

Forecast Net Working Capital						
Year:	2007	2008	2009	2010	2011	2012
Accounts Receivable	\$495.50	\$521.87	\$594.99	\$669.90	\$796.29	\$787.77
Day Sales Equipment Revenue	\$101.00	\$194.88	\$159.77	\$172.99	\$190.29	\$209.61
Prepaid Expenses	\$41.60	\$46.89	\$53.46	\$60.14	\$66.15	\$70.78
<b>Current Assets</b>	<b>\$578.10</b>	<b>\$703.65</b>	<b>\$802.16</b>	<b>\$902.43</b>	<b>\$992.67</b>	<b>\$1,062.16</b>
Deferred Service Revenue	\$149.40	\$163.29	\$186.08	\$209.94	\$230.28	\$246.40
Accounts Payable	\$260.80	\$395.45	\$382.42	\$430.22	\$479.24	\$506.97
Accrued Liabilities	\$59.20	\$64.66	\$79.71	\$82.92	\$91.21	\$97.60
<b>Current Liabilities</b>	<b>\$469.40</b>	<b>\$569.94</b>	<b>\$642.21</b>	<b>\$722.48</b>	<b>\$794.79</b>	<b>\$850.96</b>
<b>Net Working Capital</b>	<b>\$114.70</b>	<b>\$140.91</b>	<b>\$159.95</b>	<b>\$179.94</b>	<b>\$197.94</b>	<b>\$211.79</b>
<b>Changes in Net Working Capital</b>		<b>\$25.61</b>	<b>\$19.64</b>	<b>\$19.99</b>	<b>\$17.99</b>	<b>\$19.86</b>

# Free Cash Flows

Forecast Free Cash Flows					
Year:	2008	2009	2010	2011	2012
<b>NKIPAT</b>	<b>\$249.49</b>	<b>\$277.51</b>	<b>\$394.41</b>	<b>\$986.99</b>	<b>\$494.44</b>
<b>Add: Depreciation &amp; Amortization</b>	<b>\$705.29</b>	<b>\$809.96</b>	<b>\$867.44</b>	<b>\$922.98</b>	<b>\$952.91</b>
<b>Subtract: Capital Expenditures</b>	<b>\$691.27</b>	<b>\$719.65</b>	<b>\$867.44</b>	<b>\$970.09</b>	<b>\$1,055.01</b>
<b>Subtract: Net Working Capital</b>	<b>\$25.61</b>	<b>\$19.64</b>	<b>\$19.99</b>	<b>\$17.99</b>	<b>\$19.86</b>
<b>Free Cash Flow FCF</b>	<b>\$291.78</b>	<b>\$342.18</b>	<b>\$314.41</b>	<b>\$921.22</b>	<b>\$318.48</b>
<b>Present Value of FCF</b>	<b>\$274.07</b>	<b>\$901.91</b>	<b>\$260.58</b>	<b>\$250.07</b>	<b>\$292.89</b>
<b>PV of Terminal Value</b>	<b>\$4,405.90</b>				
<b>Enterprise Value</b>	<b>\$5,725.42</b>				

## Hamada's equation

$$\text{Beta}_L = \text{Beta}_U [1 + (1-T)(D/E)] - \text{Betadebt}(1-T)(D/E)$$

	Beta Calculation					
	Equity	Debt	D/E	Equity	Debt	D/E
Comparable Companies:	Market Value	Debt Value	D/E	Equity	Debt	D/E
Universal Mobile	118497.00	60190.00	0.57	0.86	45882.00	11795.00
Redbox Workday	189410.00	79951.00	0.50	0.42	42884.00	7020.00
Apple Communications	21070.00	9280.00	0.39	1.17	34038.00	1651.22
Big Country Communications	26285.00	8115.00	0.34	0.97	38896.46	6701.86
Rocky Mountain Workday	7960.00	3268.00	0.51	1.15	4065.52	510.05
Average			0.40	1.00		
Beta Leveraged for TV			0.71			
Beta Leveraged for TV			0.40			

## CAPM equation

$$r_i = r_{RF} + \text{Beta}_i [r_M - r_{RF}]$$

Risk-Free Rate		Risk-Free Rate	
Risk-Free Rate	4.25%	Risk-Free Rate	4.25%
Market Risk Premium	5.00%	Market Risk Premium	5.00%
Asset $\beta$	1.16	Asset $\beta$	1.01
$K_e$	10.06%	$K_e$	9.51%

## WACC equation

$$\text{WACC} = w_d r_d (1-T) + w_p r_{ps} + w_s r_s + w_e r_e$$

WACC for FCF		WACC for TV	
Wd	33.56%	Wd	40.00%
Rd after tax	5.30%	Rd	5.50%
Wp	88.64%	Wp	60.00%
Rp	10.00%	Rp	9.51%
WACC	6.40%	WACC	6.90%