15.390 New Enterprises

Class Eighteen
April 20, 2011

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15.390
Financials
or
What do I need to know to make a great financial section of a business plan?
Why Do a Financial Plan?

• “The numbers are meaningless”
• “It will all change anyway”
• “They all look the same”
• “The investors are just going to basically ignore it and redo it so what is the point?”
Financials are Holy Grail of B-Plan

- Demonstrates “proof” that the B-plan will make $$$$$ - puts numbers to your business model theory
- Makes your B-plan come alive for the you and the investor – translates to a financial story
- Demonstrates YOU know your milestones, YOU know your market, and YOU know how to make $$$$$$
B-Plan Financials – Nuts & Bolts

• The financials determine whether your business plan is viable

• Key components
  ▸ Income Statement (Profit & Loss)
  ▸ Cashflow
  ▸ Balance Sheet
  ▸ Assumptions Summary
  ▸ Sensitivity Analysis – high, medium, low probability of key assumptions
  ▸ Selective market metrics – average revenue per customer, inventory turn, etc.
B-Plan Financials – Nuts & Bolts

• In the written plan, discuss business model, not just $$ - try to get reader to relate to the business by associating with everyday reference points
  ▶ When and how much do you get paid?
  ▶ What is the Avg rev per customer and average cost to acquire a customer?
  ▶ What is your cost structure? Fixed or variable?
  ▶ Is bus model well established or ground breaking?
  ▶ Cash burn, time to breakeven, cash needed for breakeven
Financials Should Reflect Milestones

- Align financing needs with milestones – raise enough capital to get you beyond each milestone
- Show what you need to raise to meet each milestone, what it will be used for and how far will it take you
Financing Milestones

Friends
Family
Angel
Early Stage

Angels
Early Stage

Early Stage
Later Stage

Later Stage
M&A
IPO

M&A

Product (Units)

Profits

Expenditures

Time

Product Development

Introduction

Growth

Maturity

Decline

Units

+$

-$

Prod Dev
Alpha
Beta I
Beta II
Pilots
IP
Fundable Team

Pilots
Reg. Launch
Nat. Launch
Fundable Team
IP

Repeatable Biz Model
Enhancements
New Products

Operating Efficiencies

Courtesy of Paul Sullivan
University of Michigan

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Financials Must Relate to Market Assumptions

- Sales Growth should track with Addressable Market
- Market share should make sense with competitors’ share
- Pricing should be relevant to market
- Costs should compare with market
- Economics should be compelling
**Addressable Market Review**

**Total Market**
The full set of opportunities that might be satisfied by our products or services.

**Total Addressable Market (TAM)**
The subset of the total market whose needs are now satisfied by products/services offered by us and direct and indirect competitors. Applications where we have the ability and desire to serve, but are not currently serving, should be included in TAM.

**Served Addressable Market (SAM)**
The subset of TAM that we and/or our direct competitors actually serve, or present industry sales to this segment.

**Market Share**
Your share of the market.
How to build a financial model

1. Get the top line model built
   A. Assumptions Clear
   B. Flexible
   C. Show ties to milestones

2. Build up your COGS

3. Build up your costs in general

4. Build a P&L Statement (a/k/a Profit & Loss, Income)

5. Cash Flow is what matters

6. Graphical summary

7. Sensitivity

8. Make all major assumptions clear
# Explain the Top Line

<table>
<thead>
<tr>
<th></th>
<th>Year 1</th>
<th>Year 2</th>
<th>Year 3</th>
<th>Year 4</th>
<th>Year 5</th>
<th>Year 6</th>
<th>Year 7</th>
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<tbody>
<tr>
<td><strong>Total Rev</strong></td>
<td>$410K</td>
<td>$4.35M</td>
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<td>$23M</td>
<td>$54M</td>
<td>$90M</td>
<td>$250M</td>
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<tr>
<td><strong>Units</strong></td>
<td>40</td>
<td>305</td>
<td>610</td>
<td>1,500</td>
<td>4,500</td>
<td>9,000</td>
<td>35,000</td>
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<tr>
<td><strong>Average Price</strong></td>
<td>$10K</td>
<td>$12.5K</td>
<td>$12.5K</td>
<td>$12.5K</td>
<td>$10K</td>
<td>$8K</td>
<td>$6K</td>
</tr>
<tr>
<td><strong>Rec Rev Stream</strong></td>
<td>$10K</td>
<td>$534K</td>
<td>$1.6M</td>
<td>$4.2M</td>
<td>$9.3M</td>
<td>$17.5M</td>
<td>$40.5M</td>
</tr>
<tr>
<td><strong>Gross Margin</strong></td>
<td>70%</td>
<td>78%</td>
<td>79%</td>
<td>80%</td>
<td>75%</td>
<td>69%</td>
<td>58%</td>
</tr>
<tr>
<td><strong>Net Cash Flow</strong></td>
<td>-$2.8M</td>
<td>-$3.7M</td>
<td>-$3.7M</td>
<td>+$3.5M</td>
<td>+$13.7M</td>
<td>+$20.1M</td>
<td>+$73M</td>
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<tr>
<td><strong>Product Plan</strong></td>
<td>Version 1</td>
<td>Ver 2 &amp; 3</td>
<td>Ver 4 &amp; 5</td>
<td>Ver 6 &amp; 7</td>
<td>Ver 8 &amp; Lite</td>
<td>Ver 9 &amp; Lite 2</td>
<td>Ver 10 &amp; Lite 3</td>
</tr>
</tbody>
</table>
Income Statement Assumptions

• Revenue = Units x Price
  ▸ What is your sales unit (device, subscription, royalty, etc)
  ▸ How are you determining price

• Cost of Revenue = Units x Cost to Produce
  ▸ How much does it cost to produce a sales unit
    • Materials, Labor or both

• Operating Expenses
  ▸ Salaries, Commissions & Benefits
  ▸ Rent & Utilities
  ▸ Marketing, Tradeshow, Advertising
  ▸ Insurance
  ▸ Travel & Entertainment
  ▸ Research & Development
  ▸ Recruiting
  ▸ Shipping
  ▸ Repairs & Maintenance
  ▸ Fees
  ▸ Office Expense
  ▸ Website
Cost of Goods Sold

• What is your cost of goods sold?
  ▸ Only costs directly associated with producing your product or service
    • BOM - Bill of Material
    • Direct Labor
    • Other Direct Costs
  ▸ Not fixed costs – Insurance, telephone, etc.
  ▸ Not marketing costs
Cash is King

- Cash (not Accounting) P&L is what matters
- Track and Project Monthly < 2 years
- Project Quarterly > 2 years
# Cash Flow Statement

## TABLE 17.5 Cash flow statement.

### Year 1

<table>
<thead>
<tr>
<th>Month</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
<th>11</th>
<th>12</th>
<th>Year total</th>
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</thead>
<tbody>
<tr>
<td><strong>Operating activities</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Net profit (loss)</td>
<td>($12,897)</td>
<td>($12,897)</td>
<td>($1,935)</td>
<td>($839)</td>
<td>$366</td>
<td>$1,690</td>
<td>$3,152</td>
<td>$4,761</td>
<td>$6,523</td>
<td>$8,469</td>
<td>$10,607</td>
<td>$12,954</td>
<td>$19,954</td>
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<tr>
<td>Add: Depreciation</td>
<td>1,000</td>
<td>1,000</td>
<td>1,000</td>
<td>1,000</td>
<td>1,000</td>
<td>1,000</td>
<td>1,000</td>
<td>1,000</td>
<td>1,000</td>
<td>1,000</td>
<td>1,000</td>
<td>1,000</td>
<td>12,000</td>
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<tr>
<td>Add: Increase in royalties payable</td>
<td>2,160</td>
<td>216</td>
<td>238</td>
<td>261</td>
<td>288</td>
<td>316</td>
<td>348</td>
<td>383</td>
<td>421</td>
<td>463</td>
<td>5,094</td>
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<tr>
<td><strong>Cash flow from operations</strong></td>
<td>(11,897)</td>
<td>(11,897)</td>
<td>1,225</td>
<td>377</td>
<td>1,604</td>
<td>2,951</td>
<td>4,440</td>
<td>6,077</td>
<td>7,871</td>
<td>9,852</td>
<td>12,028</td>
<td>14,417</td>
<td>37,048</td>
</tr>
<tr>
<td><strong>Investing activities</strong></td>
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<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
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<td></td>
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<tr>
<td>Purchase of long-term assets</td>
<td>(48,000)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td>Bank loan</td>
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<td>Owners’ cash contributions</td>
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<tr>
<td><strong>Increase (decrease) in cash</strong></td>
<td>180,103</td>
<td>(11,897)</td>
<td>1,225</td>
<td>377</td>
<td>1,604</td>
<td>2,951</td>
<td>4,440</td>
<td>6,077</td>
<td>7,871</td>
<td>9,852</td>
<td>12,028</td>
<td>14,417</td>
<td>229,048</td>
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<tr>
<td><strong>Beginning cash balance</strong></td>
<td>0</td>
<td>180,103</td>
<td>168,206</td>
<td>169,431</td>
<td>169,808</td>
<td>171,412</td>
<td>174,363</td>
<td>178,803</td>
<td>184,880</td>
<td>192,751</td>
<td>202,603</td>
<td>214,631</td>
<td>0</td>
</tr>
<tr>
<td><strong>Ending cash balance</strong></td>
<td>$180,103</td>
<td>$168,206</td>
<td>$169,431</td>
<td>$169,808</td>
<td>$171,412</td>
<td>$174,363</td>
<td>$178,803</td>
<td>$184,880</td>
<td>$192,751</td>
<td>$202,603</td>
<td>$214,631</td>
<td>$229,048</td>
<td>$229,048</td>
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</table>

### Year 2

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<th>10</th>
<th>11</th>
<th>12</th>
<th>Year total</th>
</tr>
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<tr>
<td><strong>Operating activities</strong></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Net profit</td>
<td>$10,570</td>
<td>$13,411</td>
<td>$16,535</td>
<td>$19,979</td>
<td>$23,760</td>
<td>$27,926</td>
<td>$32,503</td>
<td>$37,536</td>
<td>$43,081</td>
<td>$49,174</td>
<td>$55,880</td>
<td>$63,251</td>
<td>$393,606</td>
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<td>Add: Depreciation</td>
<td>2,000</td>
<td>2,000</td>
<td>2,000</td>
<td>2,000</td>
<td>2,000</td>
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<td>2,000</td>
<td>2,000</td>
<td>2,000</td>
<td>24,000</td>
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<tr>
<td>Add: Increase in royalties payable</td>
<td>509</td>
<td>560</td>
<td>616</td>
<td>678</td>
<td>746</td>
<td>820</td>
<td>902</td>
<td>992</td>
<td>1,093</td>
<td>1,200</td>
<td>1,321</td>
<td>1,453</td>
<td>10,890</td>
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<tr>
<td><strong>Cash flow from operations</strong></td>
<td>13,079</td>
<td>15,971</td>
<td>19,151</td>
<td>22,657</td>
<td>26,506</td>
<td>30,746</td>
<td>35,405</td>
<td>40,528</td>
<td>46,174</td>
<td>52,374</td>
<td>59,201</td>
<td>66,704</td>
<td>428,496</td>
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<tr>
<td><strong>Investing activities</strong></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Purchase of long-term assets</td>
<td>(48,000)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Increase (decrease) in cash</strong></td>
<td>(34,921)</td>
<td>15,971</td>
<td>19,151</td>
<td>22,657</td>
<td>26,506</td>
<td>30,746</td>
<td>35,405</td>
<td>40,528</td>
<td>46,174</td>
<td>52,374</td>
<td>59,201</td>
<td>66,704</td>
<td>380,496</td>
</tr>
<tr>
<td><strong>Beginning cash balance</strong></td>
<td>229,048</td>
<td>194,127</td>
<td>210,098</td>
<td>229,249</td>
<td>251,906</td>
<td>278,412</td>
<td>309,158</td>
<td>344,563</td>
<td>385,091</td>
<td>431,265</td>
<td>483,639</td>
<td>542,840</td>
<td>229,048</td>
</tr>
<tr>
<td><strong>Ending cash balance</strong></td>
<td>$194,127</td>
<td>$210,098</td>
<td>$229,249</td>
<td>$251,906</td>
<td>$278,412</td>
<td>$309,158</td>
<td>$344,563</td>
<td>$385,091</td>
<td>$431,265</td>
<td>$483,639</td>
<td>$542,840</td>
<td>$609,544</td>
<td>$609,544</td>
</tr>
</tbody>
</table>
Key Info for Financial Summary

- Cash in Bank
- Monthly Burn Rate
- Top Line Growth
- Gross Margin and Operation Margin %’s
- As a % of Sales: M&S, R&D, G&A
- Bookings
- Headcount
Breakeven Analysis

• “Breakeven is defined when total sales equal the total costs”
• Is that what really matters?
• Cash flow breakeven is what really matters!
Sensitivity Analysis

- Probable
- Worst Case
- Best Case
- Don’t necessarily have to show this but have them ready and do them for your own sanity
GO Wheels Case Study

• Elevator Pitch
  ‣ Go Wheels has developed solar powered tires that can increase your HIGHWAY MPG to up to 100 MPG

• Key Considerations
  ‣ Will only improve HIGHWAY MPG
  ‣ Solar powered, so best success in sunny climates
  ‣ Retail price at $1,600 for a set of 4 tires, cost per tire is $400
  ‣ Wholesale price to tire distributor is $300 per tire
  ‣ All 4 tires must be replaced every 2 years, regardless of mileage driven
  ‣ All production and shipping outsourced to China for flat fee per unit

• Milestones
  ‣ Regional launch Jan 2011
  ‣ National launch Jan 2012
GO Wheels Market Review

Total Market
All vehicles that drive on highways worldwide

Total Addressable Market (TAM)
Total vehicles that drive on highways 50 degrees north and south of the equator

Served Addressable Market (SAM)
Total vehicles that drive more than 15,000 miles per year on US highways

Market Share
GO Wheels market share by 2015 = 10%
## Go Wheels Customer Payback

Replace regular tires every 40,000-45,000 miles. Regular cars mean replace every 3 years.

<table>
<thead>
<tr>
<th></th>
<th>Regular</th>
<th>Go Wheels</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cost of set of 4 tires</td>
<td>$400</td>
<td>$1,600</td>
</tr>
<tr>
<td>Avg years of car ownership</td>
<td>7</td>
<td>7</td>
</tr>
<tr>
<td>Tires bought during car lifetime</td>
<td>8</td>
<td>12</td>
</tr>
<tr>
<td>Total tire cost</td>
<td>$800</td>
<td>$4,800</td>
</tr>
</tbody>
</table>

- Compelling Purchase for Target Market
  - Even at higher tire price, saves owners $3,000 in gasoline over the life of their car.

<table>
<thead>
<tr>
<th></th>
<th>Regular</th>
<th>Go Wheels</th>
</tr>
</thead>
<tbody>
<tr>
<td>Avg miles per gallon highway</td>
<td>30</td>
<td>100</td>
</tr>
<tr>
<td>Avg miles per gallon city</td>
<td>20</td>
<td>20</td>
</tr>
<tr>
<td>Avg miles driven per year</td>
<td>20,000</td>
<td>20,000</td>
</tr>
<tr>
<td>Avg miles driver city per year</td>
<td>5,000</td>
<td>5,000</td>
</tr>
<tr>
<td>Avg miles driven highway per year</td>
<td>15,000</td>
<td>15,000</td>
</tr>
<tr>
<td>Avg gallons bought per year</td>
<td>750.00</td>
<td>400.00</td>
</tr>
<tr>
<td>Avg price per gallon</td>
<td>$3.00</td>
<td>$3.00</td>
</tr>
<tr>
<td>Avg cost of gas per year</td>
<td>$2,250</td>
<td>$1,200</td>
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<tr>
<td>Total gas purchase during ownership</td>
<td>$15,750</td>
<td>$8,400</td>
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</table>

Net Savings from GO Wheels: $3,350
## Go Wheels Assumptions

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<th>2012</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
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<td>20,000,000</td>
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<td>20,000,000</td>
<td>20,000,000</td>
</tr>
<tr>
<td>Penetration Rate</td>
<td>0.0060%</td>
<td>0.0120%</td>
<td>0.0240%</td>
<td>0.6000%</td>
<td>10.0000%</td>
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<tr>
<td>Vehicles with GO Wheels</td>
<td>1,200</td>
<td>2,400</td>
<td>4,800</td>
<td>120,000</td>
<td>2,000,000</td>
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<tr>
<td>Units Sold</td>
<td>4,800</td>
<td>9,600</td>
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<td>480,000</td>
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<td>Price per Unit</td>
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<td>Cost per Unit</td>
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<td>$200</td>
<td>$150</td>
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<td>R&amp;D</td>
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<td>S&amp;M</td>
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<td>18</td>
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<td>G&amp;A</td>
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<tr>
<td>Total</td>
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<td>36</td>
<td>52</td>
<td>96</td>
<td>106</td>
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<tr>
<td>Tires per Sales Person</td>
<td>533</td>
<td>533</td>
<td>662</td>
<td>9,796</td>
<td>135,593</td>
<td></td>
</tr>
<tr>
<td>Sales Cost Per Tire</td>
<td>$603</td>
<td>$301</td>
<td>$222</td>
<td>$19</td>
<td>$16</td>
<td></td>
</tr>
<tr>
<td>Breakeven Tires</td>
<td>~19,200</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
## Go Wheels Summary Financials

<table>
<thead>
<tr>
<th></th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>$ in ’000</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Revenue</td>
<td>$ -</td>
<td>$ 1,440</td>
<td>$ 2,880</td>
<td>$ 7,680</td>
<td>$ 192,000</td>
<td>$ 3,200,000</td>
</tr>
<tr>
<td>Gross Margin</td>
<td>$ -</td>
<td>$ 240</td>
<td>$ 480</td>
<td>$ 3,840</td>
<td>$ 96,000</td>
<td>$ 2,000,000</td>
</tr>
<tr>
<td>GM%</td>
<td>17%</td>
<td>17%</td>
<td>50%</td>
<td>50%</td>
<td>63%</td>
<td></td>
</tr>
<tr>
<td>R&amp;D</td>
<td>$ 548</td>
<td>$ 993</td>
<td>$ 572</td>
<td>$ 690</td>
<td>$ 690</td>
<td></td>
</tr>
<tr>
<td>Sales &amp; Marketing</td>
<td>$ 2,893</td>
<td>$ 4,258</td>
<td>$ 1,586</td>
<td>$ 8,989</td>
<td>$ 126,409</td>
<td></td>
</tr>
<tr>
<td>G&amp;A</td>
<td>$ 892</td>
<td>$ 1,571</td>
<td>$ 1,528</td>
<td>$ 2,998</td>
<td>$ 2,829</td>
<td></td>
</tr>
<tr>
<td>Total Opex</td>
<td>$ 4,332</td>
<td>$ 6,822</td>
<td>$ 3,685</td>
<td>$ 12,678</td>
<td>$ 129,928</td>
<td></td>
</tr>
<tr>
<td>Operating Income</td>
<td>$(1,200)</td>
<td>$(4,092)</td>
<td>$(6,342)</td>
<td>$ 155</td>
<td>$ 83,322</td>
<td>$ 1,870,072</td>
</tr>
<tr>
<td>Operating Margin %</td>
<td>NA</td>
<td>NA</td>
<td>2%</td>
<td>43%</td>
<td>58%</td>
<td></td>
</tr>
<tr>
<td>Net Income</td>
<td>$(1,200)</td>
<td>$(4,096)</td>
<td>$(6,346)</td>
<td>$ 151</td>
<td>$ 54,107</td>
<td>$ 1,122,041</td>
</tr>
<tr>
<td>Investment Needed</td>
<td>$ 5,000</td>
<td>$ 8,000</td>
<td>$ -</td>
<td>$ -</td>
<td>$ -</td>
<td>$ -</td>
</tr>
<tr>
<td>Cash EOP</td>
<td>$ 40</td>
<td>$ 1,072</td>
<td>$ 2,452</td>
<td>$ 2,699</td>
<td>$ 52,556</td>
<td>$ 1,049,359</td>
</tr>
<tr>
<td>Total Assets</td>
<td>$ 60</td>
<td>$ 1,168</td>
<td>$ 2,624</td>
<td>$ 3,134</td>
<td>$ 63,226</td>
<td>$ 1,227,136</td>
</tr>
</tbody>
</table>
Go Wheels Case Study

• What are the sensitivities?
  ‣ Vehicle penetration rate
  ‣ Price per unit
  ‣ Cost per unit
    ‣ Single source foreign vendor
  ‣ Sales and operating efficiencies

• What would you add/change?
  ‣ Graphical presentation of numbers
  ‣ Use of Funds Chart
  ‣ Hockey stick sales growth
  ‣ What else?
B-Plan Financials - Red Flags

- Financial model doesn’t support B-Plan assertions
  - Revenue & Cost Models Lack Detail
  - Contradicts total servable market assumptions
  - Time to profitability unrealistic
  - Assumptions, Gross & Operating Margins in outer years not in line with industry standards
  - Growth is hockey stick on steroids
    - Not based on industry trends but on gut instinct
    - Growth does not support follow on rounds
  - Seasonality not reflected
  - Financial Metrics Not Relevant
B-Plan Financials - Red Flags

- Financial statements don’t link
  - i.e. Balance Sheet doesn’t balance or tie to cashflow
- Salaries are out of line
- Capital expenditures understated
- Payables, Receivables and Inventory turnover stats unrealistic
- Financing needs not linked to milestones
- Valuation is primary focus of financial discussion
- Presenting “old” versions of models
- Presenting overly conservative numbers
Valuation Dance

• Entrepreneur concerns
  ‣ Loss of control of the company
  ‣ Future capital needs and Dilution
  ‣ Stock forfeiture if terminated
  ‣ Adequacy of financing
  ‣ Investors you can deal with

• Investor concerns
  ‣ Accuracy of valuation
  ‣ Ability to achieve liquidity/exit
  ‣ Level of risk
  ‣ Ability to participate in later rounds
  ‣ Control over management and strategic direction
Ownership Discussion/Section for Class Project

- This is **not** a legal document but rather an academic exercise
- We want you to go through the exercise even if you make up the numbers to start
- Learn how dilution happens and ownership gets split up
- Remember, this is just an learning exercise and is in no way binding
# Ownership – Cap Stock Table

<table>
<thead>
<tr>
<th></th>
<th>Founders</th>
<th>Start</th>
<th>ISO+MIT</th>
<th>Series A</th>
<th>Series B</th>
</tr>
</thead>
<tbody>
<tr>
<td>Joe</td>
<td>25%</td>
<td>18.8%</td>
<td>17.8%</td>
<td>8.9%</td>
<td>6.0%</td>
</tr>
<tr>
<td>Chris</td>
<td>20%</td>
<td>15.0%</td>
<td>14.3%</td>
<td>7.1%</td>
<td>4.8%</td>
</tr>
<tr>
<td>Avid</td>
<td>13.8%</td>
<td>10.3%</td>
<td>9.8%</td>
<td>4.9%</td>
<td>3.3%</td>
</tr>
<tr>
<td>Charity</td>
<td>13.8%</td>
<td>10.3%</td>
<td>9.8%</td>
<td>4.9%</td>
<td>3.3%</td>
</tr>
<tr>
<td>Nitin</td>
<td>13.8%</td>
<td>10.3%</td>
<td>9.8%</td>
<td>4.9%</td>
<td>3.3%</td>
</tr>
<tr>
<td>Felice</td>
<td>13.8%</td>
<td>10.3%</td>
<td>9.8%</td>
<td>4.9%</td>
<td>3.3%</td>
</tr>
<tr>
<td>ISO</td>
<td>25.0%</td>
<td></td>
<td>23.8%</td>
<td>11.9%</td>
<td>8.0%</td>
</tr>
<tr>
<td>MIT</td>
<td>5.0%</td>
<td></td>
<td>2.5%</td>
<td>1.7%</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Series A</th>
<th></th>
<th>Series B</th>
</tr>
</thead>
<tbody>
<tr>
<td>VC 1</td>
<td></td>
<td>25.0%</td>
<td>16.8%</td>
</tr>
<tr>
<td>VC 2</td>
<td></td>
<td>25.0%</td>
<td>16.8%</td>
</tr>
<tr>
<td></td>
<td>Series B</td>
<td></td>
<td></td>
</tr>
<tr>
<td>VC 1</td>
<td></td>
<td></td>
<td>11.0%</td>
</tr>
<tr>
<td>VC 2</td>
<td></td>
<td></td>
<td>11.0%</td>
</tr>
<tr>
<td>VC 3</td>
<td></td>
<td></td>
<td>11.0%</td>
</tr>
</tbody>
</table>
Ownership Pie

**Initial Founders Equity**
- Joe: 25%
- Chris: 14%
- Avid: 14%
- Charity: 14%
- Nitin: 20%
- Felice: 13%

**Equity after licensing from MIT**
- Joe: 5%
- Chris: 18%
- Avid: 14%
- Charity: 23%
- Nitin: 10%
- Felice: 10%
- ISO: 10%
- MIT: 5%

**Equity following Series B Funding**
- Founders: 33%
- ISO: 24%
- MIT: 33%
- Series A: 8%
- Series B: 2%
### What is Your Venture Worth?

<table>
<thead>
<tr>
<th></th>
<th>Year 0</th>
<th>Year 1</th>
<th>Year 2</th>
<th>Year 3</th>
<th>Year 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cash from Sales</td>
<td>349</td>
<td>3,759</td>
<td>8,483</td>
<td>21,047</td>
<td></td>
</tr>
<tr>
<td>Cash Out for COGS</td>
<td>111</td>
<td>874</td>
<td>1,835</td>
<td>4,333</td>
<td></td>
</tr>
<tr>
<td>Gross Margin</td>
<td>238</td>
<td>2,885</td>
<td>6,649</td>
<td>16,714</td>
<td></td>
</tr>
<tr>
<td>Cash Out for M&amp;S</td>
<td>217</td>
<td>1,263</td>
<td>2,824</td>
<td>6,052</td>
<td></td>
</tr>
<tr>
<td>Cash Out for R&amp;D</td>
<td>800</td>
<td>1,800</td>
<td>3,150</td>
<td>4,950</td>
<td></td>
</tr>
<tr>
<td>Cash Out for G&amp;A</td>
<td>150</td>
<td>450</td>
<td>1,025</td>
<td>1,645</td>
<td></td>
</tr>
<tr>
<td>Total Cash Out for OpEx</td>
<td>1,167</td>
<td>3,513</td>
<td>6,999</td>
<td>12,647</td>
<td></td>
</tr>
<tr>
<td>(includes capital expenditures)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cash Flow from Operations</td>
<td>(930)</td>
<td>(628)</td>
<td>(350)</td>
<td>4,067</td>
<td></td>
</tr>
<tr>
<td>Interest</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Tax (@ 40%)*</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>864</td>
<td></td>
</tr>
<tr>
<td>Cash Flow</td>
<td>(930)</td>
<td>(628)</td>
<td>(350)</td>
<td>3,203</td>
<td></td>
</tr>
</tbody>
</table>

Net Present Value of C-Flow: $131
Discount Rate: 20%
Example: Terminal Value

<table>
<thead>
<tr>
<th>Year 0</th>
<th>Year 1</th>
<th>Year 2</th>
<th>Year 3</th>
<th>Year 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sales</td>
<td>349</td>
<td>3,759</td>
<td>8,483</td>
<td>21,047</td>
</tr>
<tr>
<td>Cash Flow from Operations</td>
<td>(930)</td>
<td>(628)</td>
<td>(350)</td>
<td>4,067</td>
</tr>
<tr>
<td>Cash Flow After Tax</td>
<td>(930)</td>
<td>(628)</td>
<td>(350)</td>
<td>3,203</td>
</tr>
</tbody>
</table>

What Industry Category?
- Computer Peripheral (Logitech)
- CAD/CAM (SolidWorks, Dassault, PTC) or Design Software (Alias/Wavefront)
- Other – Virtual Reality Companies (Cybernet, Immersion), Intellectual Property

Multiple of Earnings/Free Cash Flow
- Requires multiple data points – Public Companies & M&A transactions
- Explain each one
- Triangulation

Multiple of Revenue
- Same as Earnings/FCF

Result: Justify 2-3 Multiple of Revenue $50M at end of Yr 4
More on Terminal Value

- Can be other important metrics
  - Install base – e.g. eyeballs
  - Intellectual Property
  - Strategic Partnerships

- Growth is extremely important consideration

- Gross Margin is extremely important

- Most common as company gets bigger is EBITDA
  - EBITDA or FCF Multiple 6-12x but usually 8-10x
  - Forward looking not trailing

- When big company is looking at you, they will redo financials eliminating G&A to calculate new Operating Contribution and then use their multiples to value
Rate of Return (or IRR) Calculation

- **Assumptions:**
  - $50M Terminal Value (V)
  - Discount Rate Used by Investors = 50% (r)
  - Timeframe of 4 Years (t)

- **Post Money Valuation at Year 0**
  - Formula: $V/(1+r)^t$
  - $\frac{50M}{1.5^4} = \frac{50000}{2.53125} = 19.7594M$
  - **Definition:** Post Money Valuation – Pre Money Valuation plus Investment

- **Ownership**
  - Assumed $3M in Financials
  - % Ownership for Investors = $3m/$9.876M = 30.38%
  - Assume 5 million shares $\Rightarrow$ approx. 1.519 m shares to investors
Additional Notes on Valuation

- It is a lot simpler:
  - Valuations are rounded to millions
  - Investor has a % in mind they want to own
  - Venture Capital investor has in mind an amount of money they want to put to work
  - Recognition that valuation is an imprecise science

- It a lot more complicated
  - There is much more than valuation
  - Type of stock – Terms and Conditions
  - Multiple rounds of fundraising need to be forecasted

- Don’t get obsessed on valuation
  - Need a holistic view
  - Address in a rational way
Financing – 10,000 Foot View

• Financial slides must be readable & logical
• Don’t BS on numbers
• Be upfront with problems, issues
  ▸ Saying “I don’t know” is better than digging yourself in a hole
• Align cash burn to milestones
  ▸ Try to raise at least one year’s worth of cash burn
• Anticipate each round will take 6-12 months to close
• Don’t obsess on pre-money valuation
Final Thoughts

• The Financial Section of the B-Plan is the “happy ending” to your story – the Scoreboard

• Understand the Mentality of the Investor Mantra - “Show Me the $$$” (i.e., IRR)

• Reality gets funded – great test of your credibility
Entrepreneur In Residence: Suzanne Oakley

Background:
Suzanne graduated from Georgetown University in Business Administration cum laude. She later received an MBA from MIT Sloan School of Management. In the intervening years she won the MIT 50K Competition (1995), oversaw a number of successful Telecom Services IPOs, coached young female entrepreneurs at the Center for Women & Entrepreneurship, and founded a Chocolate Events company Experience Chocolate.

Entrepreneurial Passion:
Suzanne believes, on a macro level, that 80% of the economy is fueled by small and medium sized businesses and that supporting those businesses supports the economic well-being of the country. In addition, innovation keeps us competitive in a world economy, and it is important to invest capital (both time and money) in innovation. Lastly, she believes that anyone with a good idea has a right to make a go of it and make their dream come true. On a micro level, she enjoys working with people who have a great vision. As a finance professional, she enjoys helping ground those visions on solid financial and operational footing.

Additional Personal and Professional Interests:
Suzanne is a member of the Appalachian Mountain Club, a volunteer for Literacy Volunteers, the owner of Experience: CHOCOLATE, a mentor at the CleanTech Open 2010, and an advisor at Hub Angels.

Please email Elliot Cohen at elliottc@mit.edu to apply to the program and schedule time with Suzanne.
15.390 New Enterprises
Class Seventeen
April 20, 2011

Bill Aulet
Howard Anderson
Suzanne Oakley, CPA