Class 3: Market Segmentation & Understanding Your Customer

September 22, 2016

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Today

• 5:05 - 6:00 Colleen Calhoun, Dir. Business Development & Partnerships, Current powered by GE
• 6:05 - 6:45 Market Segmentation & Understanding Your Customer
• 6:45 - 7:00 Break & Dinner
• 7:00 - 7:55 Team Time & Check-ins
WHO IS YOUR CUSTOMER?

1. Market segmentation
2. Select a beachhead market
3. Build an end-user profile
4. Calculate the TAM size for the beachhead market
5. Profile the persona for the beachhead market
6. Identify your next customers

START HERE

1. Market segmentation
2. Beachhead market
3. End-user profile
4. Business model
5. Life-cycle use case
6. High-level specs
7. Value proposition
8. Define core
9. Next 10 customers
10. Chart competitive position
11. Determine DMU
12. Map customer acquisition process
13. Follow-on TAM
14. Showdown will eat the dogfood
15. Design business model
16. Pricing framework
17. LTV
18. Marquees
19. COCA
20. Identify key assumptions
21. Test key assumptions
22. Define MVP
23. Develop product plan
24. Develop product plan
The Journey For The Holy Grail of Specificity

1. Deeper analysis of finite number of most promising market segments

2. Choose one of the market segments as First Order Beachhead

3. Beachhead Market is chosen

4. With clear definition of refined beachhead market and target customer, now do a Total Addressable Market (TAM) calculation

5. A Target Customer Profile is developed further, sharpening the focus; likely to be a further subsegment of market

Now we get very specific by finding and deeply understanding one real representative customer in our Target Market. This specificity will be our reference point for product development & marketing going forward.

15.366 Energy Ventures
<table>
<thead>
<tr>
<th>Industry</th>
<th>Entertainment</th>
<th>Industrial Design</th>
<th>Medical Visualization</th>
<th>Surgical Simulation</th>
<th>Micro Surgery</th>
<th>Geophysical Visualization</th>
<th>Non Visual C.H.I.</th>
<th>Prototyping</th>
<th>V.R.</th>
</tr>
</thead>
<tbody>
<tr>
<td>End User</td>
<td>Animator</td>
<td>Stylist Designer</td>
<td>Radiologist Surgeon</td>
<td>Med Student Surgeon</td>
<td>Surgeon</td>
<td>Geophysicist</td>
<td>Blind Person</td>
<td>Engineer</td>
<td>Researcher, Designer</td>
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<tr>
<td>Benefits</td>
<td>Ease of use Reduce cycle Increase accuracy</td>
<td>Ease of use Increase accuracy</td>
<td>Increase use of new tech. Increase accuracy</td>
<td>Reduce cycle Increase accuracy</td>
<td>Reduce errors Increase yields</td>
<td>Increase access, “mainstream”</td>
<td>Reduce cycle Improve designs</td>
<td>Realism Increase Accuracy</td>
<td></td>
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<tr>
<td>Lead Customers</td>
<td>Disney ILM Dreamworks</td>
<td>Toyota Ford Rollerblade</td>
<td>Brigham &amp; Women’s German Cancer Rsrch U of Colorado Penn BDI</td>
<td>U of Colorado Penn BDI</td>
<td>Dr. Ohgami Ottawa Eye BHP WMC / CSIRO</td>
<td>Certec U Delaware</td>
<td>Volkswagen Stratasys Toyota</td>
<td>Boeing Corrie Latham NASA</td>
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<tr>
<td>Market Characteristics</td>
<td>Early adopt. High-priced talent High growth</td>
<td>Dislike CAD &amp; computers High-priced talent High-priced talent</td>
<td>Mainstream High-priced talent HMO</td>
<td>Mainstream High-priced talent HMO Not computer automated</td>
<td>Early adopt High Priced talent HMO</td>
<td>Late main. Oligopoly</td>
<td>Late main No money Gov’t sponsor</td>
<td>Mainstream Pressure to reduce prod. cycle</td>
<td>Early adopt Fuzzy ROI Slow accept</td>
</tr>
<tr>
<td>Partners/Players</td>
<td>Alias Soft Image Discrete Logic</td>
<td>PTC Alias Imageware</td>
<td>GE Siemens Picker</td>
<td>Smith &amp; Neph Heartport Ethicon US Surgical</td>
<td>Toshiba Hitachi Landmark Fractal Graphics</td>
<td>IBM Apple SUN HP Microsoft</td>
<td>PTC Solid Works</td>
<td>Sense 8 Division Coryphaeus</td>
<td></td>
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<tr>
<td>Size of Market</td>
<td>40,000</td>
<td>X00,000</td>
<td>X0,000</td>
<td>X0,000</td>
<td>X,000</td>
<td>X,000</td>
<td>X,000,000</td>
<td>X00,000</td>
<td>X,000</td>
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<tr>
<td>Competition</td>
<td>Watcom</td>
<td>None yet</td>
<td>None yet</td>
<td>Immersion</td>
<td>None yet</td>
<td>None yet</td>
<td>None yet</td>
<td>None yet</td>
<td>None yet</td>
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<tr>
<td>Platform</td>
<td>SGI Windows</td>
<td>SGI SUN</td>
<td>SGI SUN</td>
<td>?</td>
<td>None</td>
<td>SGI</td>
<td>SUN</td>
<td>Windows</td>
<td>SUN, HF</td>
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<td>Needs</td>
<td>NURBS Stylus Dynamics</td>
<td>NURBS Stylus VRML</td>
<td>Voxels Stylus 6 DOF Custom devices</td>
<td>3 Finger scaling</td>
<td>Voxels Stylus</td>
<td>Windows I/F VRML Dynamics</td>
<td>Polygons Dynamics 2-finger?</td>
<td></td>
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Examples
- Altaeros
- A123
- FastCAP
- XL Hybrids
- Ambri

What customers value your benefits the most and is a fit for a startup company?
Altaeros

Island Power and remote DG ➔ market interest + good fit for a startup...+ cell tower???

No tolerance for tech risk

Time to market too long & $$$

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A123 Markets

Auto Market

Power Tools

15.366 ENERGY VENTURES
A123 Markets

Power Tools

Auto Market

The Grid

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• Pitched grid ancillary services at the MIT Clean Energy Prize
  – Didn’t make the finals
  – Disaster!!!?
  – Learned & adjusted…

• Won ARPA-e grant with auto market vision + drilling as the early market
  – Auto market ➔ huge long-term market
  – Drilling ➔ pays huge premium for performance characteristics
XL Hybrids Example

• 250 million vehicles on the road in the US…so where to start?
• Iterative process focuses in on the customers that can benefit most from electric drive technology
• Process helped determine product spec.
• Our mission is to reduce fuel consumption with cost effective electric drive technology. So…
GO AFTER THE BIG FUEL BILL

Focus on gallons saved, not MPG...

Horizontal Movement

Vertical Movement

Save $$$

Target Customers

Gallons Used per 100 miles

MPG

Green Premium

XL HYBRIDS

Save $$$

Focus on gallons saved, not MPG…
TARGET MARKETS

Initial Launch: Livery + Vans

Livery (Crown Vic + Town Car):
Livery Market Size: 200,000 vehicles
$1.2B market

Class 1:
Class 1-2 Market Size: 1M vehicles
$6B market

Class 2A-B:

Class 3-5:
Class 3-5 Market Size: 75,571 vehicles
$566M market

Class 6-7:
Class 6-7 Market Size: 153,617 vehicles
$1.5B market

Refuse Trucks
Market Size: 90,000 vehicles*
$1.4B market

1.5M Vehicles
30k+ Miles / Year
Urban Stop and Go
Commercial Vehicles

$10B+

Best Beachheads

Source of Vehicle Numbers: Dept. of Commerce, Vehicle Inventory & Use Survey
### Business Truck/Van Annual Mileage

<table>
<thead>
<tr>
<th>Class</th>
<th>0-10k</th>
<th>11k-20k</th>
<th>21k-30k</th>
<th>31k-40k</th>
<th>41k-50k</th>
<th>51k+</th>
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<tbody>
<tr>
<td>Class 1</td>
<td>1,988,350</td>
<td>2,345,591</td>
<td>805,009</td>
<td>298,771</td>
<td>110,719</td>
<td>80,661</td>
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<tr>
<td>Class 2</td>
<td>2,793,329</td>
<td>2,734,095</td>
<td>1,159,810</td>
<td>438,496</td>
<td>205,730</td>
<td>96,934</td>
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Source: VIUS 2002

Drive economies of scale with target market and grow into larger market as costs come down.

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Customer Audit

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<tbody>
<tr>
<td>3687</td>
<td>124:30:40</td>
<td>84:44:0</td>
<td>39:46:40</td>
<td>31.95%</td>
<td>206.6</td>
<td>17.84</td>
<td>29.6</td>
<td>82.1</td>
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<tr>
<td>1241</td>
<td>70:55:10</td>
<td>37:59:46</td>
<td>32:55:24</td>
<td>46.42%</td>
<td>94.3</td>
<td>13.16</td>
<td>17.5</td>
<td>82.7</td>
</tr>
<tr>
<td>2087</td>
<td>105:37:31</td>
<td>60:22:46</td>
<td>45:14:46</td>
<td>42.84%</td>
<td>149.8</td>
<td>13.94</td>
<td>19.8</td>
<td>84.0</td>
</tr>
<tr>
<td>2144</td>
<td>123:17:37</td>
<td>64:9:01</td>
<td>59:8:36</td>
<td>47.97%</td>
<td>176.8</td>
<td>12.13</td>
<td>17.4</td>
<td>84.5</td>
</tr>
</tbody>
</table>

![Graphs showing speed and power distribution](image_url)
Case Study: Ambri

- Background on Ambri
- Core challenges of market entry
- Planning prototype deployments
- Commercial progress
Ambri Timeline

2005 Concept imagined

2005-2011 Lab work at MIT
- $12 M funding for on-campus efforts (2009)
- Identified cost effective chemistry (2010)
- Energy Ventures!

2010-2012 Ambri spins out
- Founded in 2010
- > $15M equity financing
- Team and lab 2011
- Located in the heart of CAMBRidge
- 2013 Operating prototype battery -- BMS
- Prototype manufacturing line

2013-2015 Preliminary Business Development
- > $50M total equity financing
- Prototype battery systems contracted
- Factory designed

2016 Expand Manufacturing efforts
- First commercial orders
- Small scale manufacturing plant operational
Core challenges of market entry

1. Electricity market is highly regulated (State and Federal) and extremely risk averse.

2. No clear acquisition mechanisms for primary customers (Utilities).

3. Entrepreneur’s paradox:
   Investors want to hear about large untapped markets, but as an entrepreneur you want to get product to market, likely in a niche, high-margin application.
Case Study: Ambri

Early Markets

- High electricity prices, mostly from diesel generation (remote/island grids), but also from significant congestion.
- Significant renewable generation
- Single end user: Vertically integrated utilities, large C&I/DOD
First commercial contract:

1 MWh to Joint Base Pearl Harbor-Hickam

Raytheon Control System  →  PV  →  1 MWh Ambri System  →  Local Electric Power System

Raytheon  

NAVFAC  

Naval Facilities Engineering Command
Target Customer Profile

I can generally see them and describe them to you but they are not in completely clear focus yet.
Build a Persona

- It must be a real person
- Be visual
- Understand All Dimensions: Rational, Emotional and Social
- Priorities
  - What do they fear most in the world?
  - What motivates them more than anything else?
- What “water holes” do they go to?
  - i.e., where do they congregate with others like them?
- Do this as a team – it will help unify your team and will get everyone on the same (and proper) wavelength
Example Persona

- Chuck Kirby, Facilities Manager, IBM NE Data Center in Littleton, MA
- 20K Blade servers today growing at 15% per quarter for past two years and for the foreseeable future
- Second generation American
- Lives in Medford
- Medford High to Middlesex Community College
- Moved to Winchester
- Family with 2 kids (12, 15)
- Mid-career, many years at company, technical, maintenance focus, vocational degree
- Been in job for 5 years and seen three managers already
- Promotion path forward is to manage more facilities
- AFCOM, Uptime Institute, Green Grid, starting to read blogs (Hamilton & Manos)
- Ford 150 pickup truck, Beeper always on, volunteer fireman mentality
- Customers’ Customer and Their Priorities (think mindset of a utility customer)
Where to Get Started

• Assess the stage of your business and knowledge?
  – Do you know enough to effectively describe your business or the problem you’re trying to solve?
  – What are the right questions to ask customers?

• Do you know enough about your customers?
  – Are you ready to talk with them?
  – What do you need to do to get ready?
Fundamentals

• Know the basics of the overall energy space
  – MW vs. MWh, PPA, capacity factor, efficiency (tricky), light vs. heavy, sour vs. sweet, Henry Hub…

• Know the terms in your part of the space: do people talk in metric tonnes, barrels, or gallons…or all three

• Know enough about your customers other options
  – Direct and indirect competitors

• Eventually become a specialist in your sector
Networking Is Key

• Leverage the MIT and Harvard alumni network
  – Strong intros make a huge difference

• LinkedIn is a great (and cheap) resource:
  – Identify, learn about, and connect with customers
    • Customer example
  – Great way to find the right person in a large organization

• Attend events attended by your customers
Tradeshows + Conferences

- Be very selective in which ones you go to, there are events all of the time and they range in quality.
- Largest benefit is mainly the people there.
- Everyone in the same place at the same time:
  - Efficient way of meeting with potential or existing customers, partners, suppliers…
  - Make sure you schedule ahead if possible as people can get very busy – have a plan.
- Get the attendee list and conference materials in advance if possible and set up customer meetings in advance!
- Ideally you should be presenting!
Other Sources

- Follow your customers & competitors on twitter
- Sign up for the same industry magazines / news sources your customers read
- Daily briefs/blogs
- Be innovative in finding sources!
  - Lawsuits (NYC taxi example)
Homework for next week

• Read *DE:24* - Step 5-9

• Read Ambri case (posted on Stellar)

• **Deliverables:** Preliminary Findings (posted on Stellar), Preliminary target market, high level competitive landscape, product/service offering.
  
  • List of questions you plan to ask customers and partners to sharpen up concept.
  
  • Assignment 1a: Short individual memo on strengths/weaknesses of approach to customers utilized by (a) Sense and (b) Bidgely.
A note on Assignments

• In general, assignments are due at 11:59pm the Wednesday before class

• Please select one person from your team to be responsible for uploading the completed assignment to Stellar