

Present Biomanufacturing as a Sustainable Business

Final Project Assignment
Biofuels and Bioproducts

Bronx Community College - 2017
*Chemistry and BioEnergy Technology for Sustainability NSF ATE
1601636*

Outline

- A Crash Course in Business
 - The Minimum Viable Product
 - Business Model Canvas <-> Customer Interviews
 - Final Assignment

Final Project

- Based on the information learned in this class (and elsewhere in literature)
 - Select a Bio-Product (molecule or mixture) for your “Company” to produce (biomanufacture)
 - Work as 4 membered team
 - Delegate duties -> Everyone conducts at least 5 interviews per value proposition!
 - Combine the data to make a customer archetype
 - Make and meet deadlines for deliverables!

What is your Business Model?

Vertically Integrated Development

Research and design for bio-manufacturing is performed by corporations that develop the entire process end-to-end: from feedstock sourcing to organism engineering to manufacturing and sales.

Apple Inc. is a contemporary example of this, with design, operating system, sales, and service being provided by Apple Inc. itself.

Centralized Production

Biomanufacturing occurs in a handful of very large capacity facilities that take advantage of economies of scale to eliminate inefficiency and produce chemicals with thin margins and at volumes sufficient to meet world demand

The petroleum industry is a contemporary example of centralized production.

Horizontally Stratified Development

Research and design for bio-manufacturing is performed by different companies that each specialize in a different step along the production process.

The PC industry is a contemporary example of this, with design, components, assembly, operating systems, software, sales, and service being provided by specialized companies.

Distributed Production

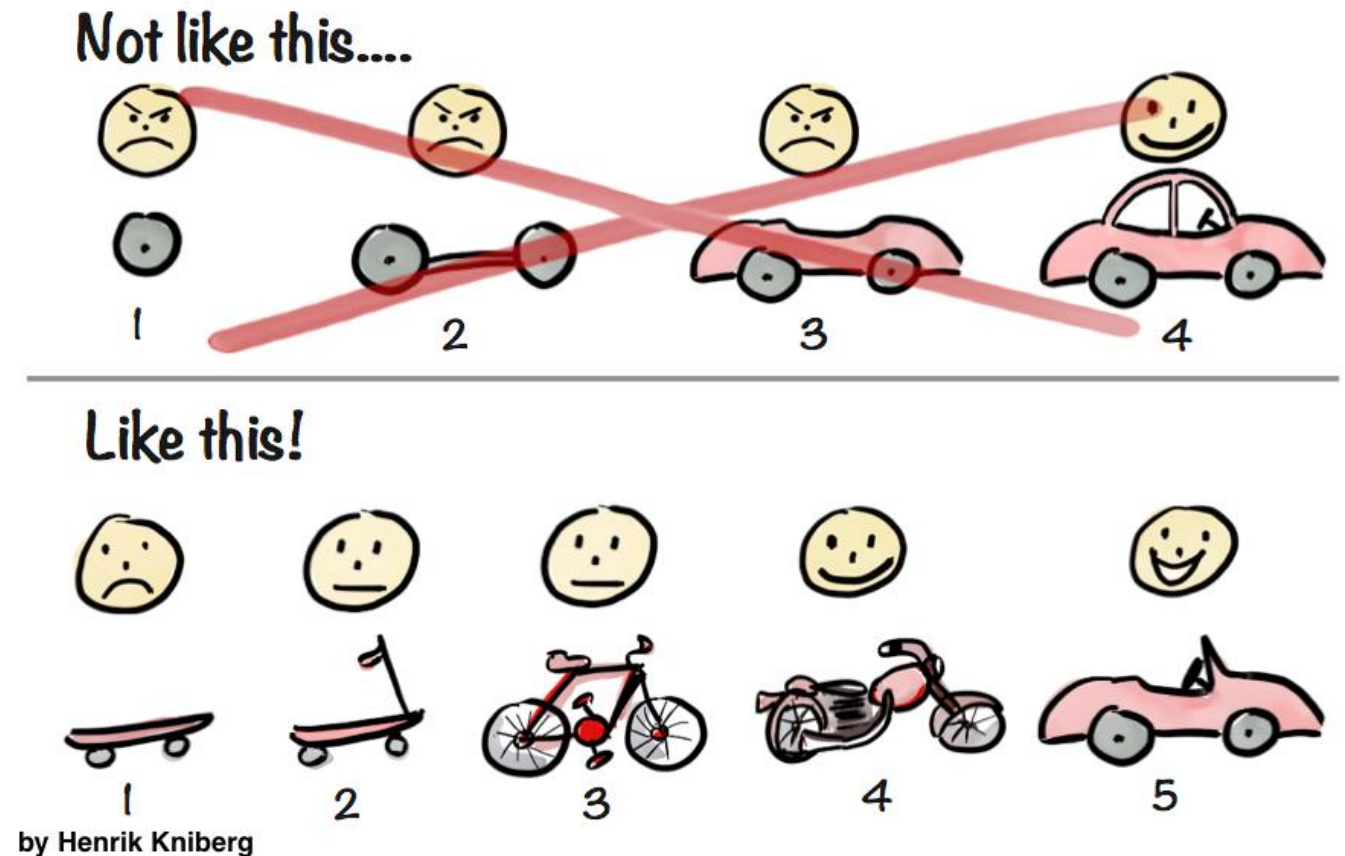
Biomanufacturing occurs in many local, small-scale facilities, potentially using geographically co-localized feedstocks and producing only enough product to meet local demand.

The home brewing or micro-brewery industry is a contemporary example of distributed production.

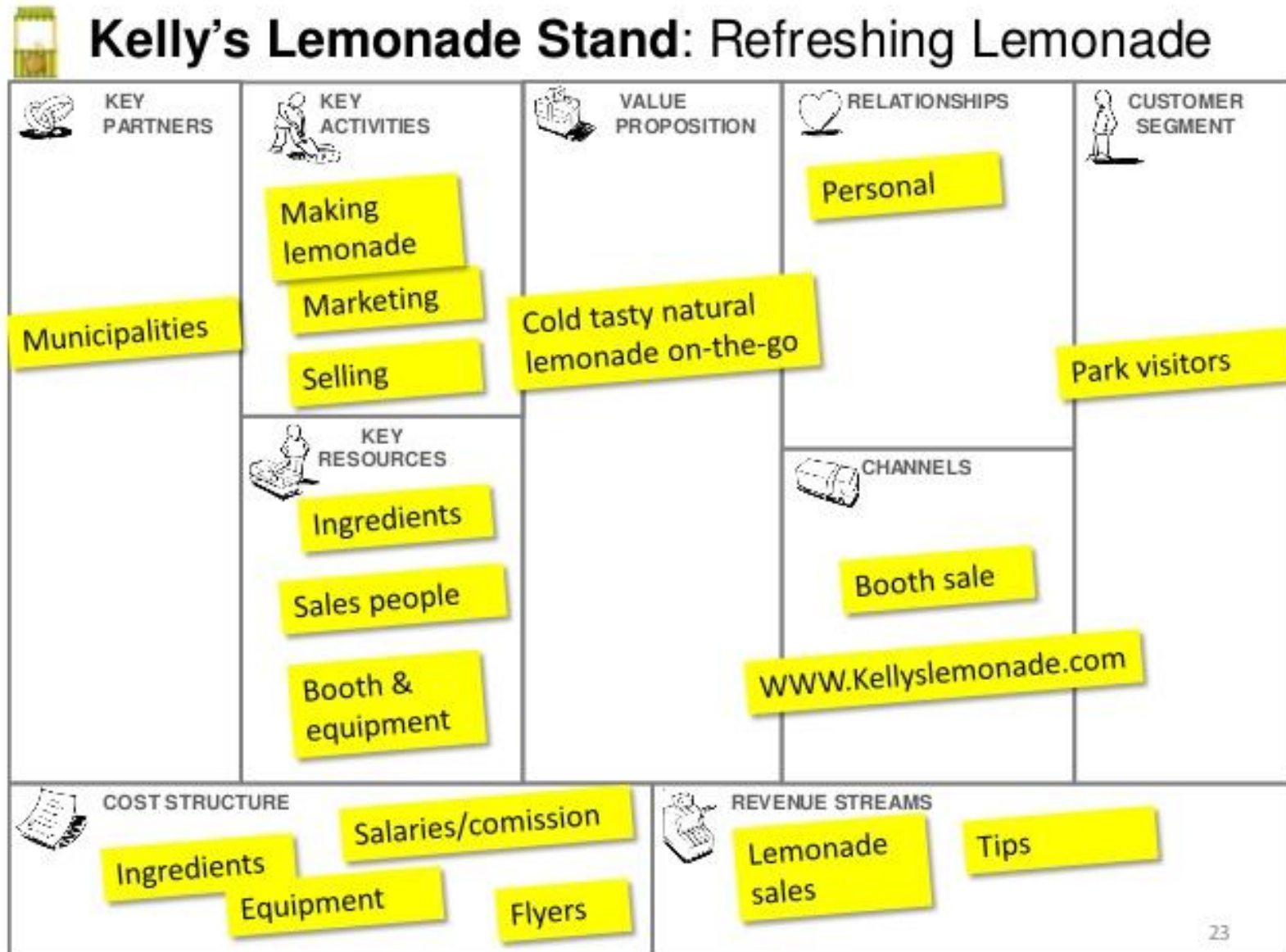
The Minimum Viable Product

- In product development, the MVP is a product with just enough features to satisfy early customers and also provide feedback for future development
- Use the Design-Build-Test-Learn Loop
- “Tests” are customer interviews designed to determine customer “pain points”

(<https://steveblank.com/category/2-minute-lessons/>)



How does it all work together?



Customer Archetypes

Drive Get/Keep/Grow

Lab Manager: Brian

- What's their role?
 - How this person is evaluated / promoted / compensated?
- Who are they?
 - Buyer's name
 - Position / title / age / sex
- How do they buy?
 - Discretionary budget (name of budget and amount)
- What matters to them?
 - What motivates them?
- Who influences them?
 - What do they read/who do they listen to?



Example of a Customer Archetype



Meet Bridget

Age early 30s

Marital Status Married

Kids No, but plan to

Job Manager at a consulting firm

Dog Riley (lab poodle)

Monthly spent on Riley \$400-\$500

Pains inflexible schedule, hard to arrange dog walker, feel bad to leave the dog home, no way to interact with Riley while away, stressful, sensitive stomach, exhausted after daycare, emotional

Motivation curiosity, obsession, affection

Influencer dog trainer, dog breeder, FB page for dog owners

Final Presentation

- Final Presentation 20 min
 - Selection of Product = Hypothesis
 - Customer Interviews = Test the Hypothesis
 - Define your Minimum Viable Product:
 - Customer Archetype
 - Cost and Process Breakdowns
- Final Video (3 min)
 - Company Logo – Design and Display
 - State Your Company Mission and Value Proposition Concisely (Elevator Pitch). How are you better/different than the competition???
 - Live Action (Feedstocks, Reactors, Packaging, Distribution, End Users)
 - Roles and Interviews (e.g. Archetype Customer (Student 1), CEO (Student 2), Project Scientist (Student 3), Expert/Board Member (Student 4)).
 - Final Product Shot & Contact Info