

Module 10 – From Idea to Business - Accelerators



Global Greenchem
Innovation & Network Program



Green Chemistry Toolkit



Center for Green Chemistry &
Green Engineering at Yale

Module Goals



- Understand Startup Frameworks tailored to green chemistry startups
- Seek Scalability and financing for pilot facilities and commercial scale-up
- Go-to-market differences between Business to Business (B2B) and Business to Consumer (B2C)
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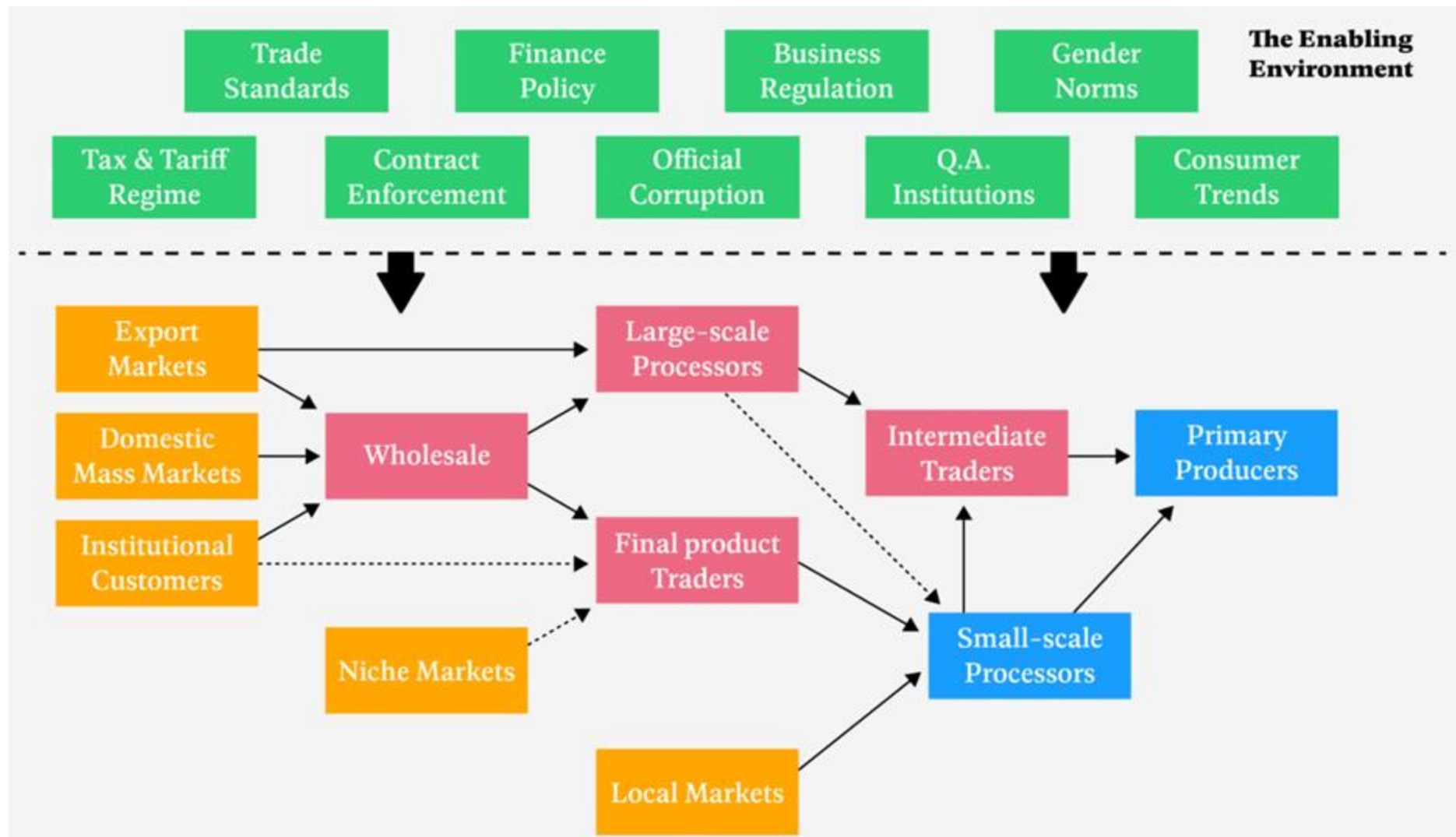


Identifying Market Opportunities

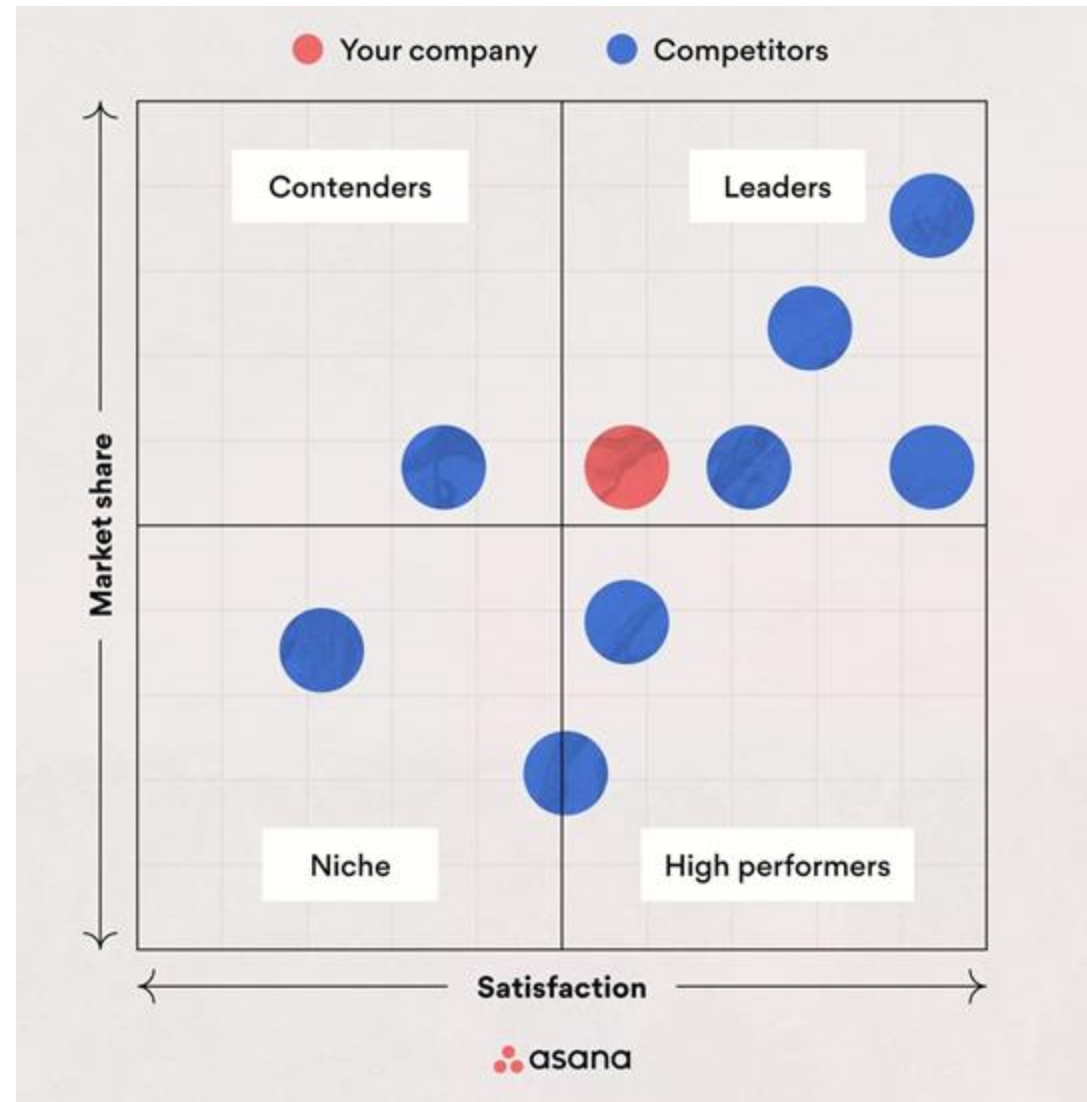
- Assess Purchasers, Suppliers, Competitors, Market Conditions, Enabling Environment
- Desk research, surveys, and interviews
 - B2C Example: Validating demand for sustainable packaging with surveys and social media analysis
 - B2B Example: Identifying unmet needs for bio-based industrial solvents through industry interviews and regulatory analysis
- Competitive Analysis Techniques
 - Strength, Weakness, Opportunities, Threats (SWOT) analysis to identify differentiation



The "Market" for a product



The importance of Market Maps



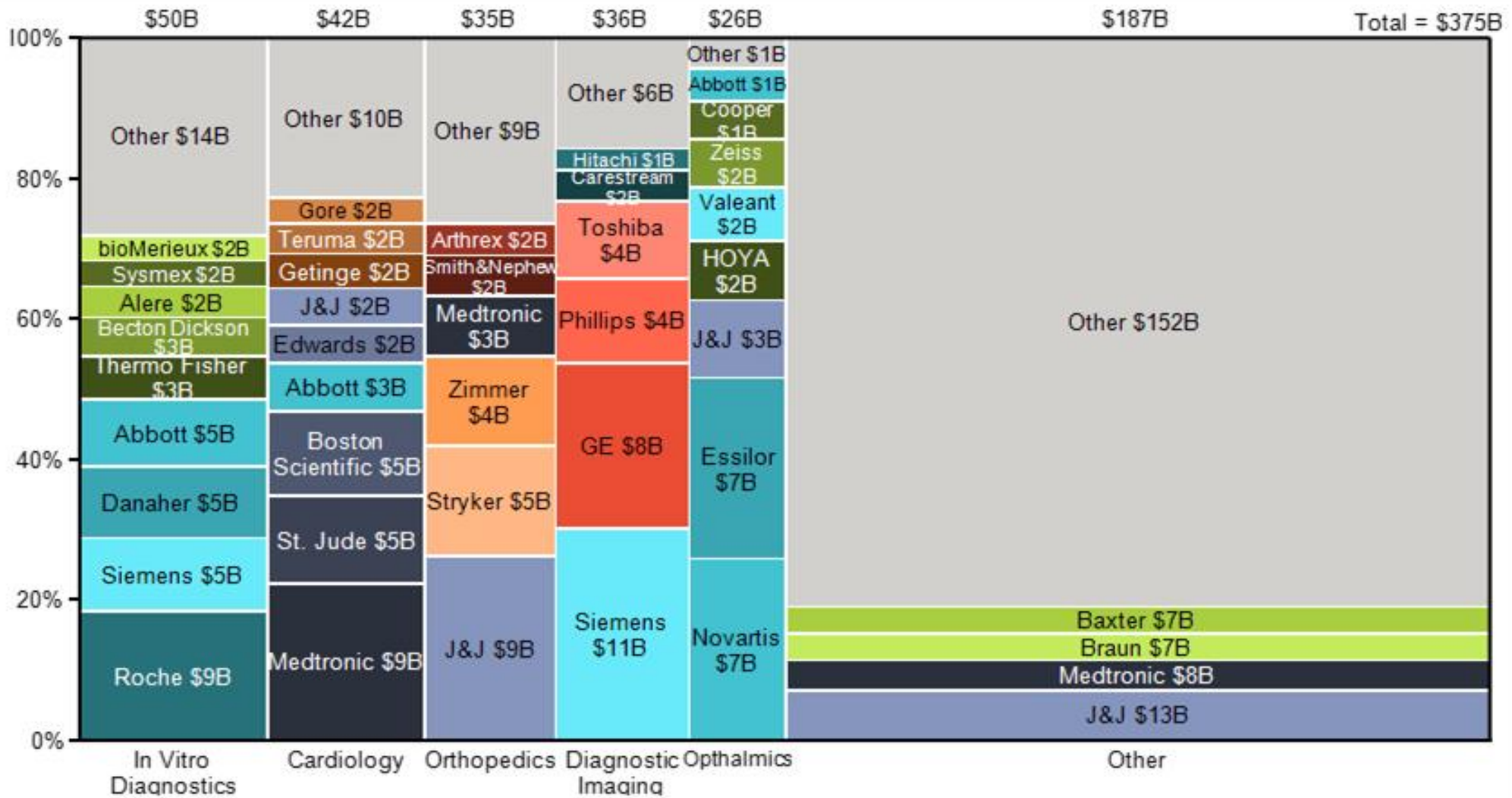
The importance of Market Maps



| |  |  |  |  |  |
|-------------------------------------|---|--|---|---|---|
| Shows Most Relevant Results | ✓ | | | | |
| Load Time < 1 Second | ✓ | ✓ | ✓ | ✓ | ✓ |
| Shows > 8 File Types | ✓ | ✓ | ✓ | | |
| Largest Ad Inventory Volume | ✓ | | | | |
| Owns Mobile Operating System | ✓ | | | | |



The importance of Market Maps



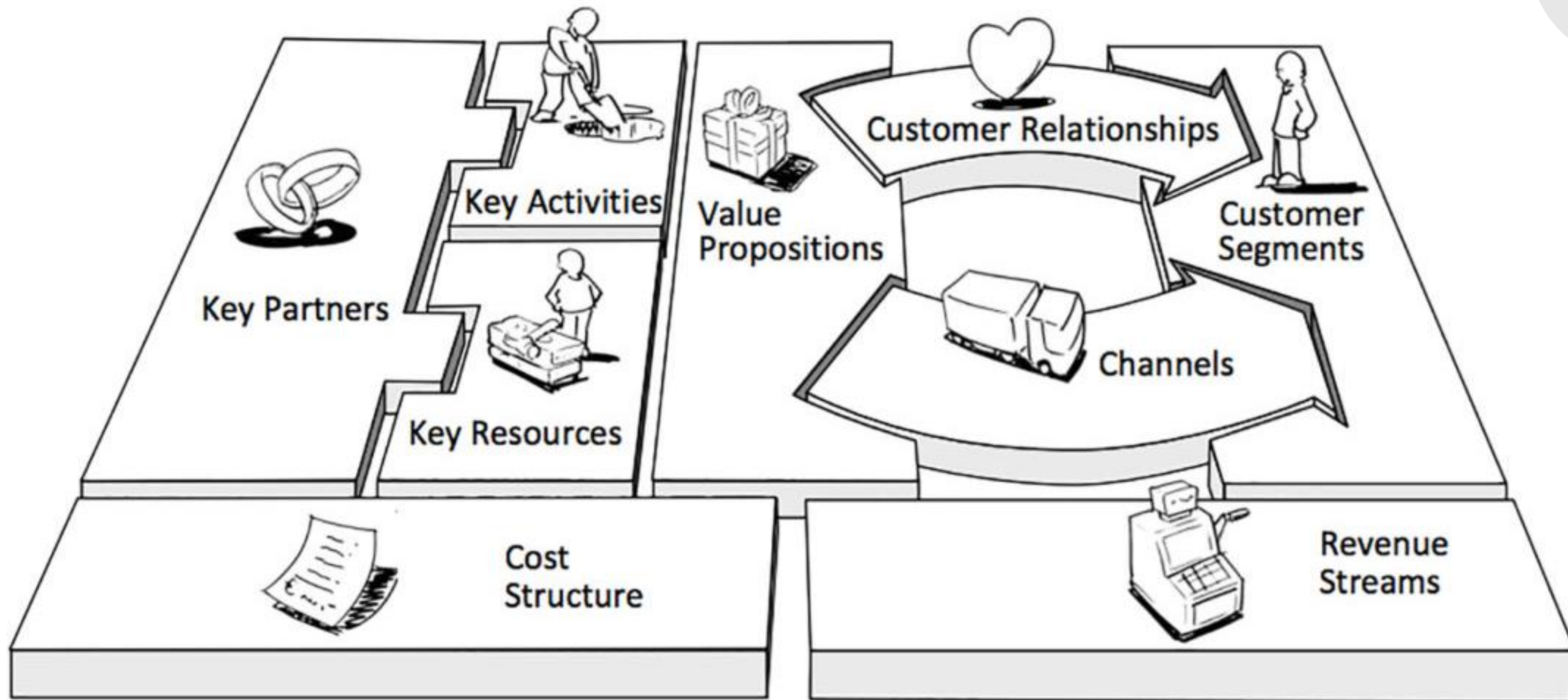
Developing a Business Model



- **Business Model Canvas**
 - Mapping the key components of the business model
- **Value Proposition Design**
 - Identifying core customer pain points and unmet needs
 - Addressing economic, environmental and social benefits
- **Revenue Streams and Cost Structure**
 - Performing break-even and profitability analysis
 - Assessing revenue model scalability



Business Model Canvas





Building a Comprehensive Business Plan

- **Key Components of a Business Plan**
 - Executive summary, market analysis, operational/execution plan
- **Investment Readiness**
 - Thought leadership and targeted outreach
 - Data room and prospectus
- **Tailoring investment pitch to different investor types**
 - Venture Capital, Corporate Investors, Impact Investors, Angel Investors



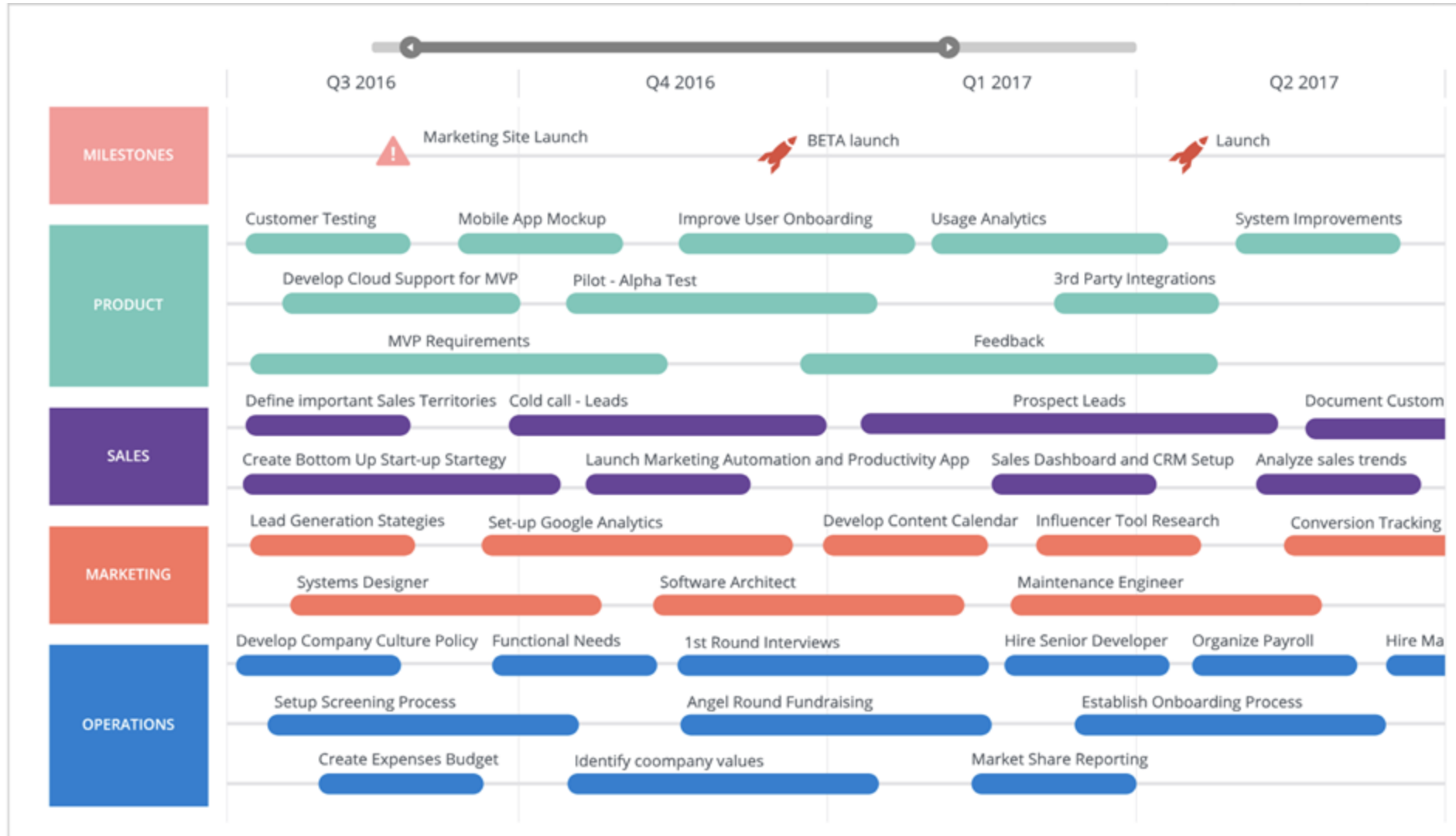


Designing for Scale

- **Operational Infrastructure**
 - Planning for pilot facility requirements and modularity
- **Technology and Equipment**
 - Incorporating automation and IoT for process monitoring and control
- **Supply Chain Management**
 - Evaluating suppliers based on reliability, quality and ESG criteria



Strategic Roadmaps for a Venture



Scaling and Growth Strategies



- **Expanding Production Capacity**
 - Developing a phased roadmap with resourcing and partnership needs
- **Market Expansion**
 - Identifying markets led by customer discovery and pilots
 - Leveraging multinational corporate partnerships for global expansion
- **Strategic Partnerships for Growth**
 - Building the ecosystem to unlock new capabilities and markets
 - Structuring partnerships with clear milestones and value sharing



Scaling and Growth Strategies



Challenges in Scaling Green Chemistry Startups



- **Regulatory Challenges**
 - Proactively complying with emerging regulations like REACH
- **Funding and Financial Management**
 - Funding gaps and cashflow challenges
- **Market Adoption and Consumer Education**
 - Driving market awareness and adoption



Building/Managing a High-Performance Team



| | | | |
|--|---|---|---|
| Promote and encourage autonomy in your team | ✓ | ✓ | Make sure to nurture, develop and sustain the culture |
| Develop purpose, vision and values | ✓ | ✓ | Show that culture matters to you |
| Action and behaviours are important in living a high performance culture | ✓ | ✓ | Create rituals that support your high performance culture |
| Connect with everyone on your team | ✓ | ✓ | Model and behaviours and values that define the culture |



Building/Managing a High-Performance Team



Building/Managing a High-Performance Team



- **Recruiting Talent**

- Attract mission-driven talent through thought leadership

- **Team Structure and Dynamics**

- Clear roles, interdisciplinary, aligned vision

- **Leadership and Culture**

- Invest in leadership and skills development across the organization
- Founder behavior becomes the culture



Financial Modeling for Green Chemistry Startups



- **Corporate vs project finance:** ongoing business or a one-time project deployment?
- **Creating Financial Projections**
 - Forecast revenue based on pricing assumptions, customer acquisition costs
 - Income statement, balance sheet, statement of cash flow
- **Cash Flow Management**
 - Implementing budget vs actual reporting cadence to track performance
 - Perform 12-month cash flow modeling to identify deficits
 - Leveraging favorable payment terms and discounts to improve cash conversion cycle
- **Resources:**
 - [**https://www.asimplemodel.com/financial-curriculum/financial-modeling**](https://www.asimplemodel.com/financial-curriculum/financial-modeling)
 - [**https://edbodmer.com/**](https://edbodmer.com/)





Income Statement

Company Name

(000s)

| INCOME STATEMENT | 20X1 | 20X2 |
|--------------------------------------|---------------|---------------|
| Revenue | 74,452 | 83,492 |
| <i>Growth (%)</i> | <i>NA</i> | <i>12.1%</i> |
| Cost of Goods Sold | 64,440 | 72,524 |
| <i>% of Sales</i> | <i>86.6%</i> | <i>86.9%</i> |
| Gross Profit | 10,012 | 10,968 |
| <i>% of Sales</i> | <i>13.4%</i> | <i>13.1%</i> |
| Operating Expenses (SG&A) | 6,389 | 6,545 |
| <i>% of Sales</i> | <i>8.6%</i> | <i>7.8%</i> |
| Operating Income (EBIT) | 3,623 | 4,423 |
| Interest Expense | 518 | 474 |
| Pretax Income | 3,105 | 3,949 |
| Income Tax Expense | 1,087 | 1,382 |
| <i>Tax Rate</i> | <i>NM</i> | <i>NM</i> |
| Net Income | 2,018 | 2,567 |
| Operating Income (EBIT) | 3,623 | 4,423 |
| Depreciation | 2,648 | 2,981 |
| Amortization | 0 | 0 |
| EBITDA | 6,271 | 7,404 |





Balance Sheet

Company Name

(000s)

| BALANCE SHEET | 20X1 | 20X2 |
|---|---------------|---------------|
| ASSETS | | |
| Current Assets | | |
| Cash | 1,773 | 2,000 |
| Accounts Receivable | 7,750 | 8,852 |
| Inventory | 4,800 | 5,700 |
| Prepaid Expenses | 456 | 1,849 |
| Total Current Assets | 14,779 | 18,401 |
| Fixed Assets | | |
| PP&E, Net of Accum. Depreciation | 10,913 | 10,932 |
| TOTAL ASSETS | 25,692 | 29,333 |
| LIABILITIES | | |
| Current Liabilities | | |
| Accounts Payable | 5,665 | 6,656 |
| Line of Credit | 792 | 1,375 |
| Current Maturities of Long Term Debt | 500 | 500 |
| Total Current Liabilities | 6,957 | 8,531 |
| Long Term Liabilities | | |
| Long Term Debt, Net of Current Maturities | 5,000 | 4,500 |
| TOTAL LIABILITIES | 11,957 | 13,031 |
| EQUITY | | |
| Common Stock | 15 | 15 |
| Additional Paid In Capital | 5,000 | 5,000 |
| Retained Earnings | 8,720 | 11,287 |
| TOTAL EQUITY | 13,735 | 16,302 |
| TOTAL LIABILITIES & EQUITY | 25,692 | 29,333 |
| Check | 0.0 | 0.0 |



Navigating Legal and Intellectual Property Challenges



- **Patents, trade secrets, and trademarks**
 - Lawyer assessment of “freedom to operate” and competitive advantages
- **Regulatory Compliance**
 - Navigating evolving landscape of industrial chemical regulations
 - Engaging regulators and contributing to industry standards
- **Drafting Contracts and Agreements**
 - Considerations for licensing, joint development and strategic partnership deals
 - Balance risk and relationship building



Investor Engagement and Pitching



Building Relationships with Investors

Researching and prioritizing based on stage and sector

Crafting a compelling narrative emphasizing value creation

Crafting a Compelling Pitch

Concise and persuasive pitch: best practices for messaging and Q&A

Fundraising Strategy

Mapping the fundraising from pre-seed to Series A and beyond

Designing a data room for investor due diligence and deal closing





What Should Be On Your Pitch Deck?

According to VCs and Successful Startups

| | 500 Startups | Guy Kawasaki | Sequoia Capital | NextView Ventures | Crowdfunder | Airbnb Pitch Deck |
|-------------------------------------|--------------|--------------|-----------------|-------------------|-------------|-------------------|
| Slides | 11 | 10 | 11 | 15+ | 12 | 13 |
| Executive Summary | | | | • | | |
| Problem | • | • | • | • | • | • |
| Solution / Value Proposition | • | • | • | • | • | • |
| Market Validation / Why Now? | | | • | • | • | • |
| Product | • | | • | | | • |
| Market Size | • | | • | • | | • |
| Business Model | • | • | • | • | • | • |
| Underlying Magic | • | • | | • | | |
| Competition | • | • | • | • | • | • |
| Competitive Advantage | • | | | | | • |
| Marketing Plan / Go-to Market | • | | | • | • | • |
| Founding Team | • | • | • | • | • | • |
| Board / Advisors | | | • | • | | |
| Traction / Milestones | • | • | | • | • | |
| Press / User Testimonials | | | | • | | • |
| Fundraising | • | • | • | • | • | • |
| Financial / Use of Funds | | • | • | • | • | |



Market Positioning and Competitive Strategy

- **Creating a Strong Market Position**

- Defining and claiming a differentiation
- Developing a narrative and messaging for key stakeholders

- **Competitive Strategy**

- Anticipating and countering competitive moves through game theory
- Monitoring competitor and market activity

- **Building Brand Equity**

- Pursuing third-party certifications and recognition
- Driving brand awareness and thought leadership



Market Strategy

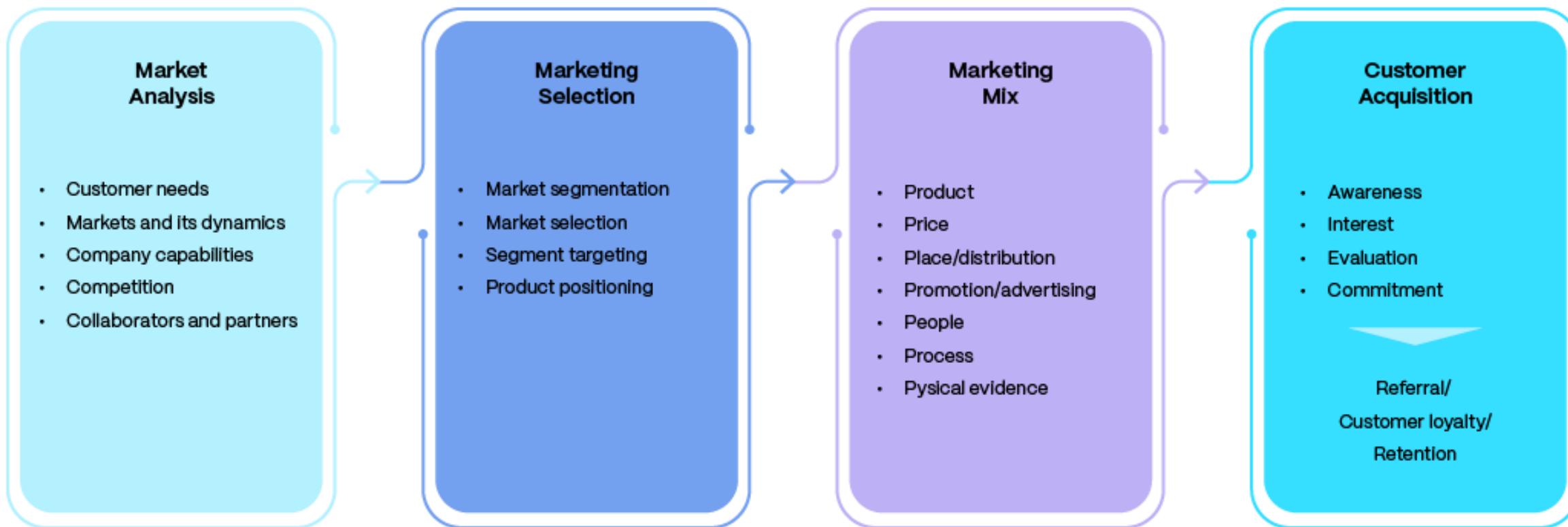


What does the market look like?

Whom do we go after and how?

What do we sell?
Where and how do we sell it?

How do we gain and retain customer?



Developing a Go-to-Market Strategy



- **Identifying and Targeting the Right Markets**

- Focus on a single customer segment to build traction (“Beachhead Market”)
- Validate product-market fit through pilots and leverage partnerships
- Compelling narrative and cohesive identity

- **Developing an Effective Sales and Marketing Approach**

- Mix sales channels to align with industry-specific purchasing
- Implement an integrated strategy across owned, earned, and paid media
- Create assets and tools to educate buyers and accelerate their journey



Execution Considerations

- **Supply Chain Management**

- Identifying and derisking critical bottlenecks
- Multi-tier and multi-geography strategy for key supplies

- **Managing Growth**

- Knowledge management systems
- Leading the team through setbacks, pivots, and successes
- Anticipate risks - assume worst case, not upside!



Practical Tips



These tips might be useful when trying to set up a business and accelerate it:

- Use customer discovery to validate market demand early
- Explore licensing and joint ventures for market entry
- Provide financial modeling support to manage scaling costs
- Facilitate partnership matchmaking events with industry leaders



Discussion Questions



To finalize this session, these discussion questions are useful to reflect on the concepts you have seen.

- What are the big challenges in scaling green chemistry innovations from lab to market?
- How can startups prepare to transition from pilot to production?
- What role do strategic partnerships play in the success of green chemistry startups?





Yale School of
the Environment



Center for Green Chemistry &
Green Engineering at Yale

Advance Science

Catalyze
Implementation

Prepare the next
generation

Raise Awareness

Thank You!

For questions, please reach out:

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