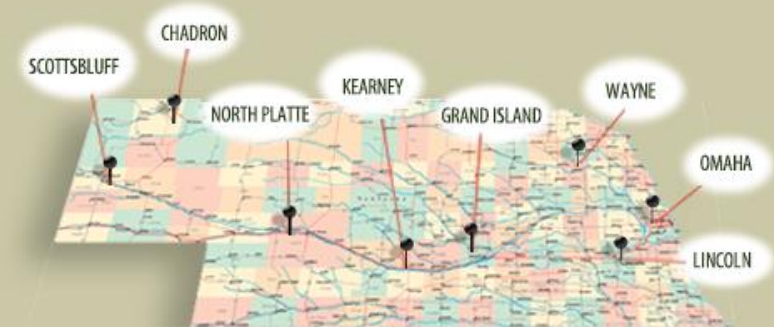




Commercialization for Researchers

A guide for business planning by scientists and engineers

Robert E. Bernier, Ph.D.





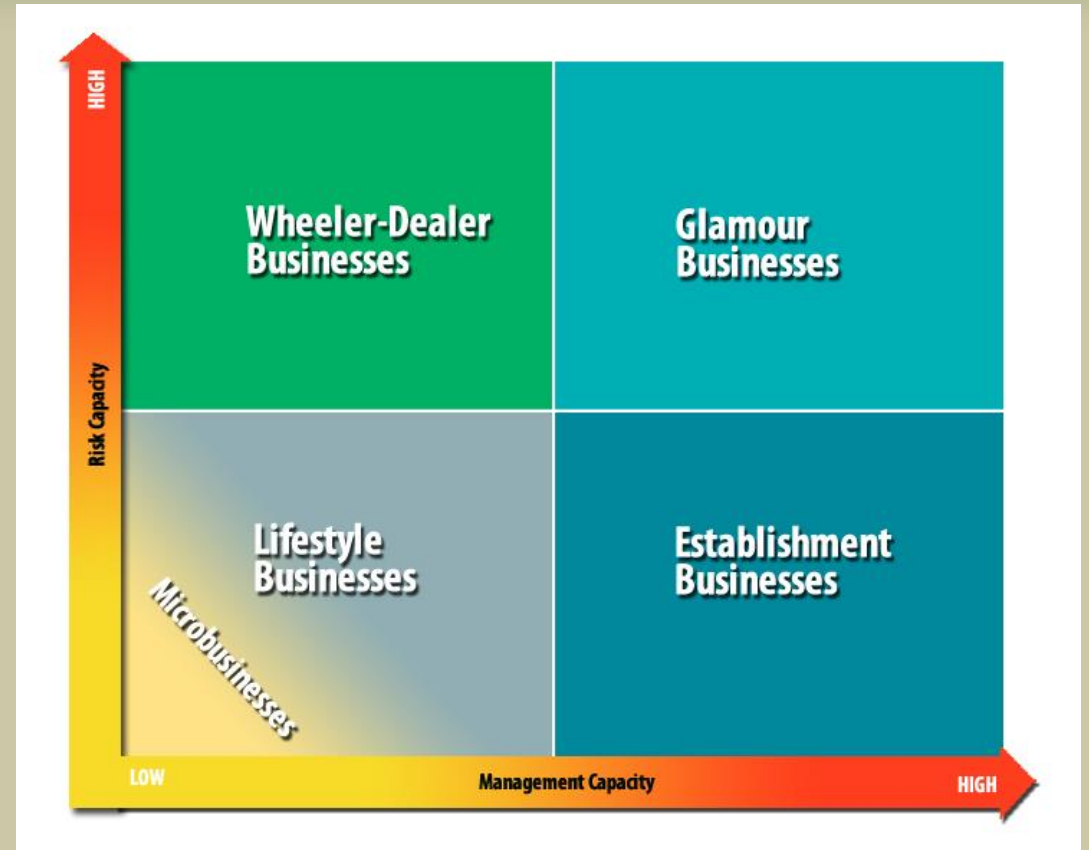
Technology Commercialization

- Commercialization is the monetization of innovation
- Commercialization occurs through
 - Licensing
 - Development as part of a large company
 - Development as an entrepreneurial venture
- Commercialization interests
 - Universities and Research Laboratories
 - Sponsoring Corporations



Forms of Entrepreneurial Organization

- Wheeler-Dealer Business
- Lifestyle Business
 - Licensing Strategy
- Glamour Business
 - Rapid Growth
- Establishment Business
 - Managed Growth





About Risk

■ Technological Risk

- Will it perform?
- Is it scalable?

■ Market Risk

- Who is the customer?
- What is the price point?

■ Financial Risk

- Investment Alternatives
- Timing of Investment Return

■ Management Risk

- Management Capacity
- Organizational Team



Commercialization Team

- Inventor/Scientist
- Monitor
 - Tech Advisor, Validator
 - Professional Consultant
 - Approval Agency
- Champion
- Sponsor
 - Investor
 - Resource Provider
- Stakeholder
 - Potential Customer
 - Related Beneficiary



The Business Plan

- Detailed map of structure, strategy and finances of a business
- Appropriate for strategic planning
- Appropriate for seeking debt and equity financing
- Inappropriate as a starting point



The Business Model

- Similar to a Theoretical Model
- Key Components of the Business Model
 - What need will you satisfy?
 - Who are your potential customers?
 - What is your unique value proposition?
 - What is your cost structure?
 - What will be the revenue streams?



The Business Model Canvas











Designed for:

Designed by:

Date: / /

Iteration: /

One version of a business model canvas

<p>Key Partners </p> <p>Who are our Key Partners? Who are our key suppliers? Which Key Resources are we acquiring from partners? Which Key Activities do partners perform?</p> <p><small>Key Partnerships: 1. Co-opetition 2. Joint ventures 3. Strategic alliances 4. Supplier integration 5. Buyer integration</small></p>	<p>Key Activities </p> <p>What Key Activities do our Value Propositions require? Our Distribution Channels? Customer Relationships? Revenue Streams?</p> <p><small>Key Activities: 1. Production 2. Logistics 3. Distribution 4. Platform/network 5. Service 6. Retail 7. Sales 8. Support 9. Procurement 10. Infrastructure</small></p>	<p>Value Propositions </p> <p>What value do we deliver to the customer? Which one of our customer's problems are we helping to solve? What bundles of products and services are we offering to each Customer Segment? Which customer needs are we satisfying?</p> <p><small>Value Propositions: 1. Performance 2. Reliability 3. Customization 4. Price 5. Convenience 6. Design 7. Location 8. Service 9. Speed 10. Risk Reduction 11. Compatibility</small></p>	<p>Customer Relationships </p> <p>What type of relationship does each of our Customer Segments expect us to establish and maintain with them? Which ones have we established? How are they integrated with the rest of our business model? How costly are they?</p> <p><small>Customer Relationships: 1. Personal Assistant 2. Self-Service 3. Co-creation 4. Communities 5. Concierge 6. Dedicated Personal Assistant 7. Self-Service 8. Self-Service 9. Self-Service 10. Self-Service</small></p>	<p>Customer Segments </p> <p>For whom are we creating value? Who are our most important customers?</p> <p><small>Customer Segments: 1. Mass 2. Niche 3. Segments 4. Markets 5. Niches</small></p>
<p>Key Resources </p> <p>What Key Resources do our Value Propositions require? Our Distribution Channels? Customer Relationships? Revenue Streams?</p> <p><small>Key Resources: 1. Physical 2. Intellectual 3. Financial 4. Human 5. Channels 6. Infrastructure</small></p>		<p>Channels </p> <p>Through which Channels do our Customer Segments want to be reached? How are we reaching them now? How are our Channels integrated? Which ones work best? Which ones are most cost-efficient? How are we integrating them with customer relations?</p> <p><small>Channels: 1. Direct 2. Indirect 3. Intermediaries 4. Partners 5. Resellers 6. Retailers 7. Wholesalers 8. Distributors 9. Agents 10. Brokers</small></p>		<p>Revenue Streams </p> <p>For what value are our customers really willing to pay? For what do they currently pay? How are they currently paying? How much do they prefer to pay? How much does each Revenue Stream contribute to overall revenues?</p> <p><small>Revenue Streams: 1. Transactional 2. Subscription 3. Usage-based 4. Advertising 5. Commission 6. License 7. Royalty 8. Rental 9. Lease 10. Resale 11. Brokerage 12. Commission 13. License 14. Royalty 15. Rental 16. Lease 17. Resale 18. Brokerage</small></p>
<p>Cost Structure </p> <p>What are the most important costs inherent in our business model? Which Key Resources are most expensive? Which Key Activities are most expensive?</p> <p><small>Cost Structure: 1. Fixed 2. Variable 3. Semi-variable 4. Variable 5. Fixed 6. Semi-variable 7. Variable 8. Fixed 9. Semi-variable 10. Variable 11. Fixed 12. Semi-variable 13. Variable 14. Fixed 15. Semi-variable 16. Variable 17. Fixed 18. Semi-variable 19. Variable 20. Fixed</small></p>			<p>Revenue Streams </p> <p>For what value are our customers really willing to pay? For what do they currently pay? How are they currently paying? How much do they prefer to pay? How much does each Revenue Stream contribute to overall revenues?</p> <p><small>Revenue Streams: 1. Transactional 2. Subscription 3. Usage-based 4. Advertising 5. Commission 6. License 7. Royalty 8. Rental 9. Lease 10. Resale 11. Brokerage 12. Commission 13. License 14. Royalty 15. Rental 16. Lease 17. Resale 18. Brokerage</small></p>	



Needs and Customers

- What need will you satisfy?
 - Three most important problems your innovation solves
 - Pain points
 - Are they strong Wants?
- Who are the potential customers?
 - Characteristics of the customer (person or organization)
 - Reasons they want the solution



Value Proposition

- Reasons solution will be chosen by the customer over other possible solutions and other possible money uses
- Supporting Components
 - Solution Description
 - Metrics that drive customers to the solution
 - Unfair advantage over alternatives
 - Channels to the market



Cost and Revenue

■ Cost Structure

- Production or Sourcing, Inventory
- Management team and employees
- Marketing and Distribution

■ Revenue Streams

- Who will pay? How will they pay? How much will they pay?
- Accounts Receivable. Collections.



Testing the Model

- Testing Assumptions about Customer Wants
 - Review of Competitor Offerings and sales
 - Survey of customers, distributors
- Testing Assumptions about Distinct Advantage
 - Marketplace Technology Developments
 - Marketplace sales channels
- Testing Assumptions about Cost Structure



Moving to the Business Plan

- Investor Perspective
 - Experience of the Investor
 - Alternatives of the Investor
 - Timing of the Investment and the Payoff
 - Desires of the Investor
- Presentation of the Plan
 - Completeness builds confidence in the entrepreneur
 - Must be the entrepreneur's plan



The People

- Founders
- Members of the Team
 - Do they provide skills needed to support the founders?
 - Are they committed to the vision of the enterprise?
- To be employed in the venture
- To provide support to the venture
 - Monitors & Sponsors



The Opportunity

- The Product or Service
 - Does it have a discernable advantage?
- The Market
 - Is the market large or growing?
- The Industry
 - Is the industry structurally attractive or can it become so?
 - Do industry practices require customer or supplier financing?



The Opportunity

- Will the customer understand the product or service?
 - How much education does the customer need?
 - Is this a compelling customer purchase?
 - How much does it cost to acquire a customer?
- Are customers a potential target for related or follow-on products or services?
 - Does the product or service have the potential to build loyalty?



The External Context

- General Market Context
 - Are investors looking for opportunity or holding cash?
- Alternative Products and Services
 - Will market conditions or familiarity encourage customers to stay with existing solutions?
- Financial Context of Industry
 - What is the history of financial success in the industry?



The Pro Forma Financials

- Income Statement
 - Quarterly for three years
- Balance Sheet
- Sources and Uses of Funds
- Cash Flow Analysis
 - Monthly for three years



The Deal

- From whom should the money be raised?
 - Debt
 - Equity
 - Suppliers or Customers
- How much money is needed and for what purpose?
- What deal terms are fair and provide appropriate incentives for each side under a wide range of scenarios?



NBDC Resources

Wei Jing, Technology Program Director
Nebraska Business Development Center
University of Nebraska at Omaha
Mammel Hall, Suite 200
Omaha, NE 68182
(402) 554-6270
wjing@unomaha.edu