

Our most important innovation is the way we work[©]

Creating Value

The societal impact from a focus on value creation

Curtis R. Carlson, Ph.D.

Founder and CEO, Practice of Innovation, LLC

Distinguished Executive in Residence, WPI

President and CEO, SRI International: 1998–2014

email: curt@practiceofinnovation.com

website: www.practiceofinnovation.com

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Global Innovation Economy

- Abundant opportunities
- Huge unmet markets
- Exponential progress
- New business models
- Intense competition



SRI in 1998

- Famous R&D laboratory in Silicon Valley
- In serious trouble
 - Steady decline for 20 years
 - Deeply in debt, selling land
- Causes
 - Outdated value creation practices
 - Poor collaboration — many grudges
 - No trust in senior management



Vision, Strategy, and Plan

- Vision: “The premier independent source of *high-value* innovations”
- Strategy
 - Focus on important opportunities
 - Perform world-changing R&D and commercialization
- Plan
 - Teach all staff *value-creation*
 - Everyone a champion
 - Enviably human values

Major Turnaround

- Tripled R&D to \$550M and 2,500 staff
- New innovations worth \$10s of billions



- Value-creation methods used worldwide:
US, Japan, Chile, Taiwan, Singapore, Finland

What's the Purpose?

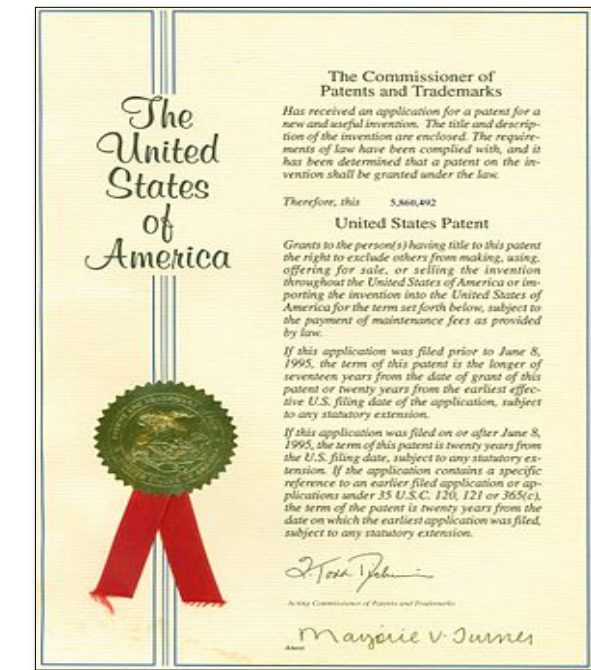
- Engineering
- Math, biology, chemistry, physics
- Economics, business
- Art, media, architecture
- Social sciences, psychology
- Political science!

Create value for their customers

Definition of Innovation

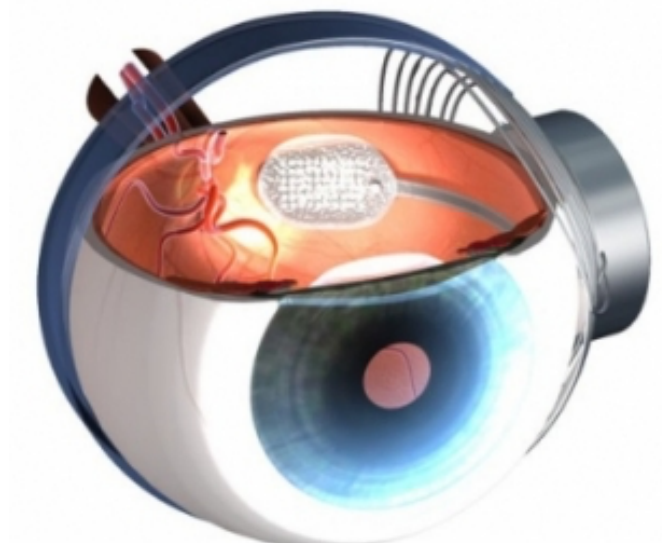
Invention: Something novel reduced to practice

< 3% used



Innovation: Creation and delivery of new customer value for society with a model for sustainability

NSF's artificial retina



All significant innovations are surprising at first

Generally Very Poor Performance

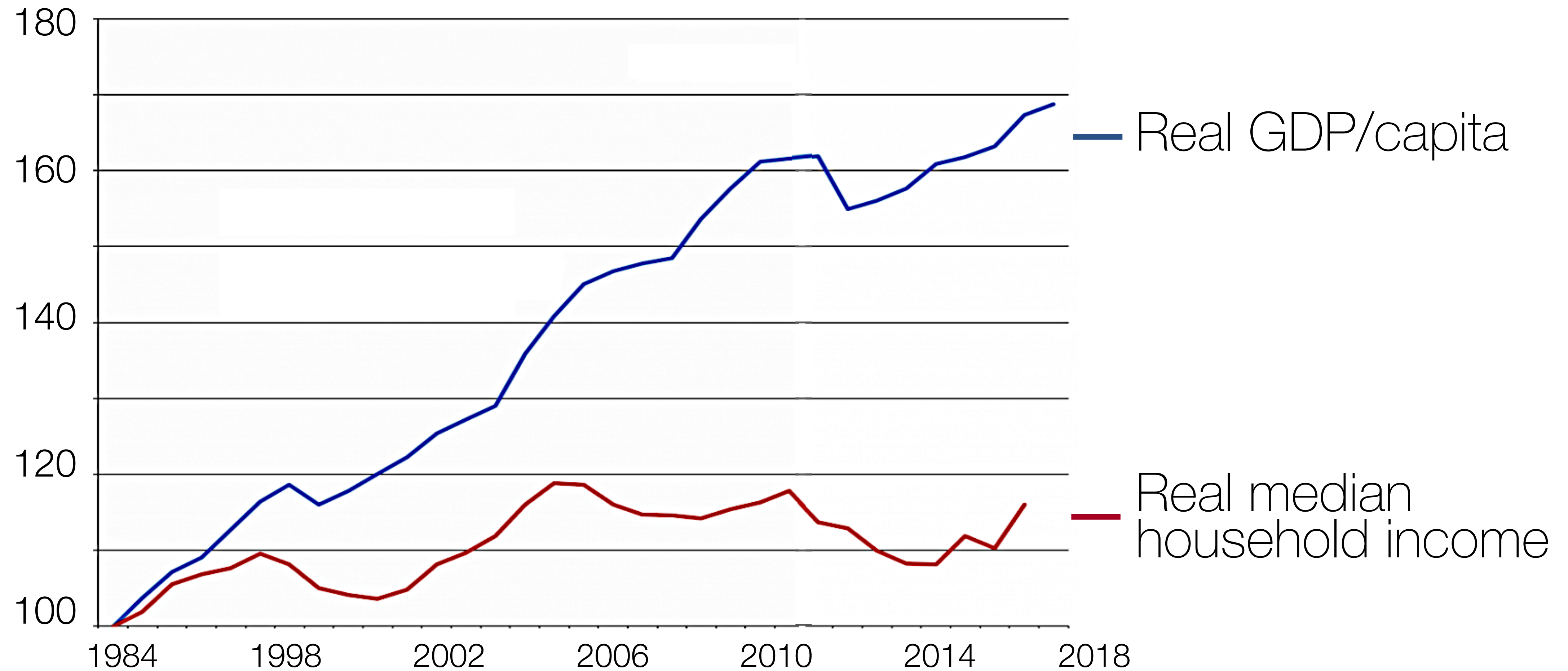


- Companies: < 20% matters
- University “tech transfer”
- Incubators
- Gov’t R&D
- Venture capitalists

Gov’t R&D \$ in decline



No Median Income Growth



Not just jobs: *meaningful* jobs

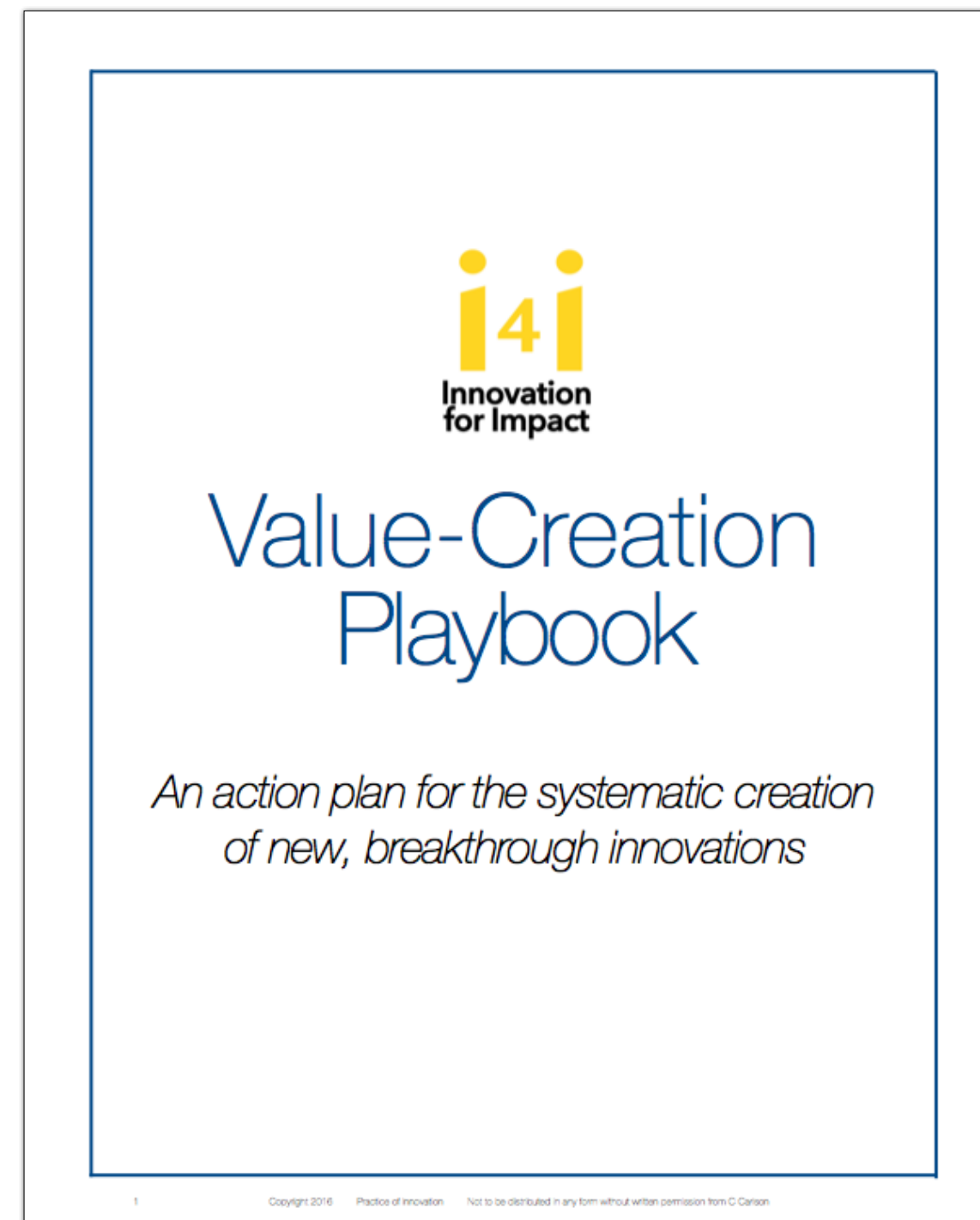
Is Entrepreneurship the Right Focus?

- Even with
 - 300 university I&E programs
 - 6,000 professors
 - 1,600 incubators
 - \$Bs per year of gov't programs
- Since 1987 ventures of scale declined 30%



NAE Value-Creation Best Practices

- 2-yr study on best practices for NSF Eng. Centers
- Mixed performance: poor practices
- Create a best-practice “value-creation playbook”



Three Keys to Success

- *Conceptual frameworks:* NABC Value Propositions
- *Impact:* Important opportunities
- *Fast learning:* Value-Creation Forums

Definition of Customer Value

$$\text{Value} = \frac{\text{Customer benefits}}{\text{Customer costs}}$$

Benefits & costs as perceived by the customer: not us

Core Mental Framework: Value Proposition

Need

Approach: offering & sustainability model

Benefits /costs

Competition & alternatives

Complicated methods *don't* work

Most Common Failure: > 95%



If you can't describe your value proposition,
you don't yet know what you are doing

Value Creation Comes First

VC Pitch

Company purpose Start here: define your company in a single declarative sentence. This is harder than it looks. It's easy to get caught up listing features instead of communicating your mission.

Problem Describe the pain of your customer. How is this addressed today and what are the alternatives?

Solution Explain your solution and why it is better and compelling? Why should we care?

Why now? The best time to start. Why now? Nature hates a vacuum.

Market potential Identify the market size. Some of the best companies are in markets that are not yet saturated.

Competition / alternatives Identify your direct and indirect competitors. How do you differentiate?

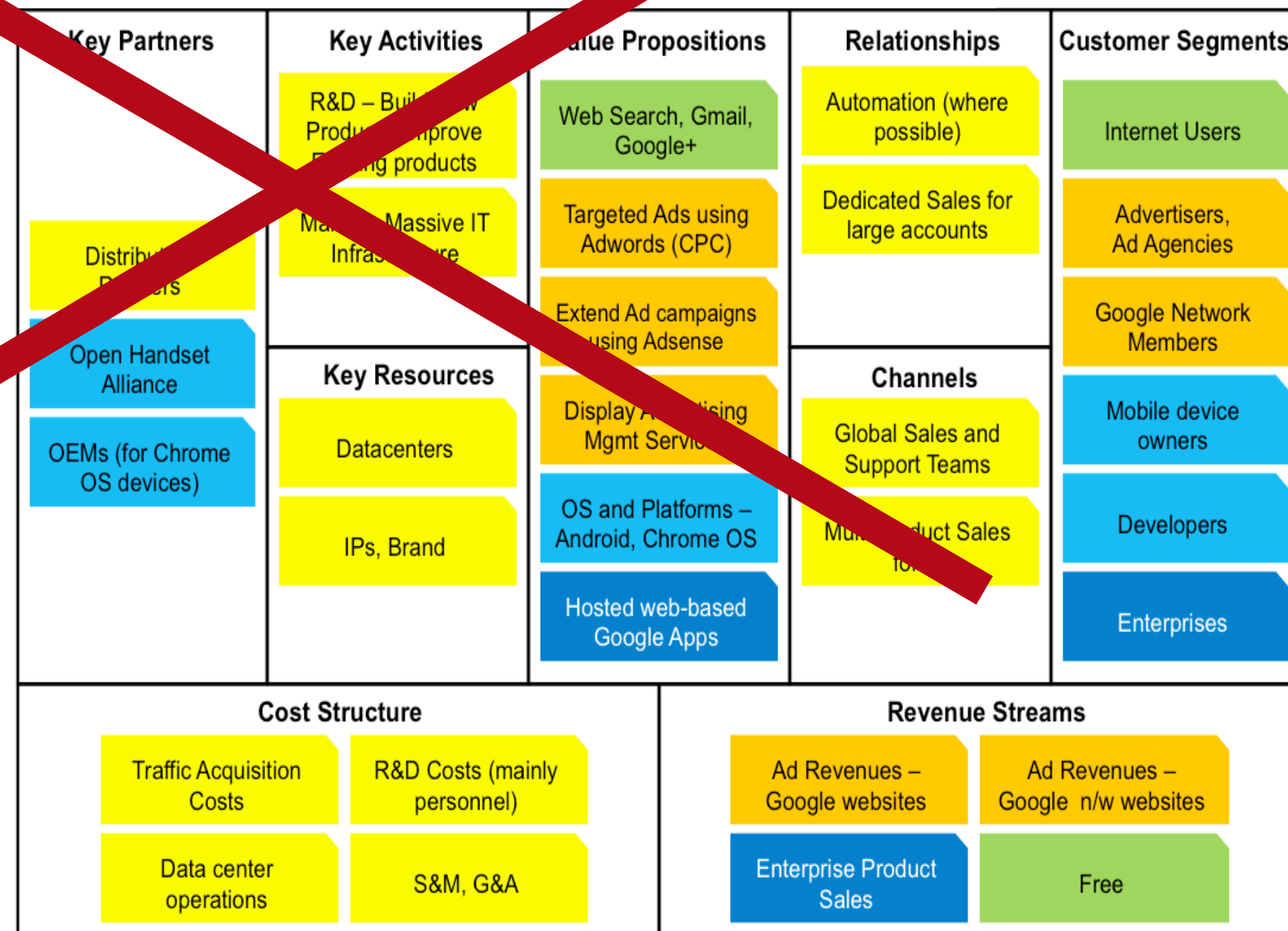
Business model How do you make money? What are your revenue streams?

Team Tell the story of your team. Why are you the right people to build this company?

Financials If you have the numbers, show them. If not, show your projections.

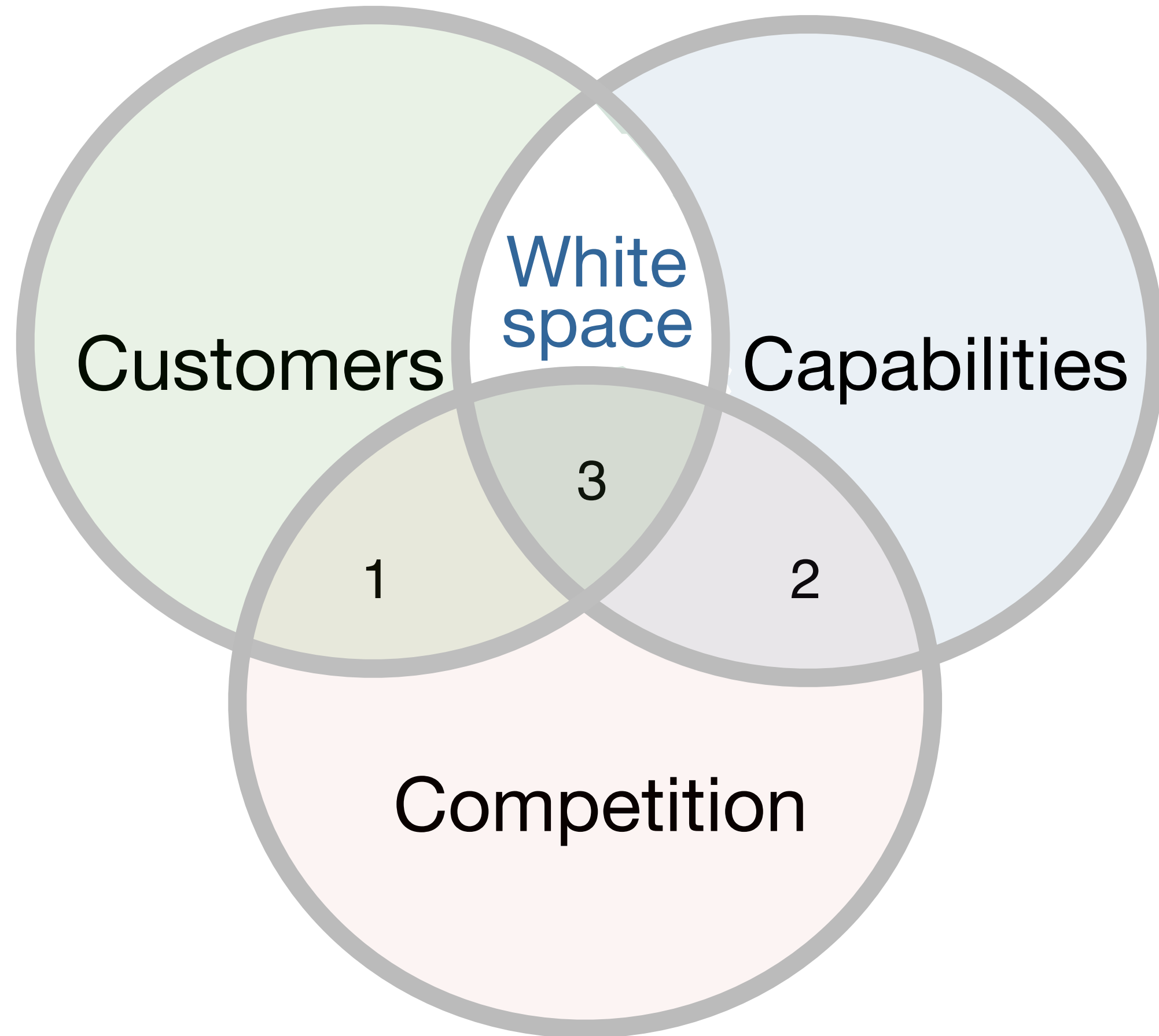
Vision If all goes well, what is your vision for the future of your company?

Business Model Canvas



Need
Approach
Benefits/costs
Competition

Important Opportunities



The few key insights

- Why not solved before
- Solution & sustainability model

Example: Augmented Mobility

1. Important customer and societal need



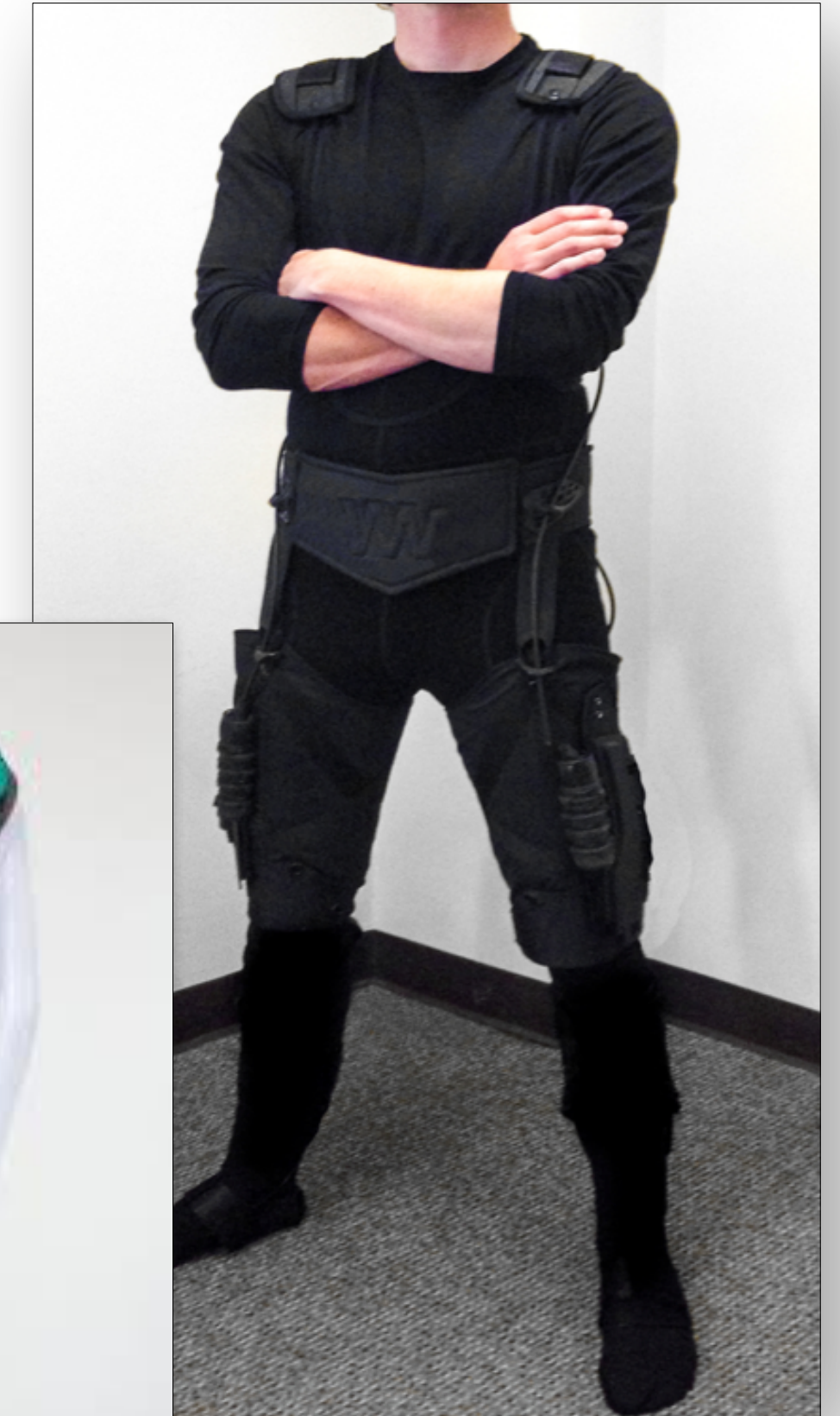
2. Key insight—how to attach to the body?



3. Key insight—flexible coupling



4. Approach: wearable augmentation



Value-Creation Forums



“Which is better, A or B?”

- 4-6 teams, 2-10 minute NABCs, every 2 to 4 weeks
- Presenters listen to feedback, no arguing
- Big idea: comparative learning

Development of Siri



R&D

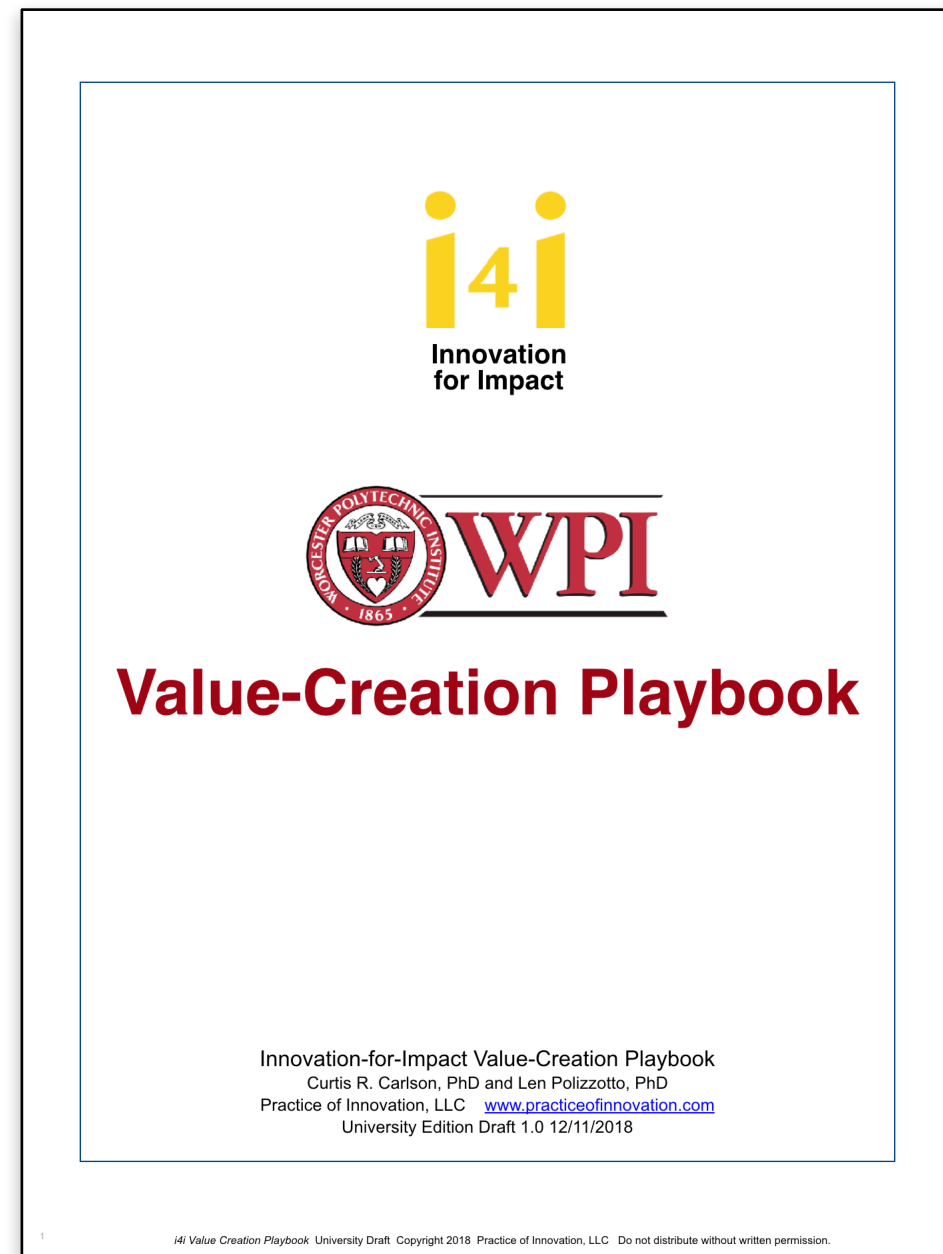
Siri



NABC Value Propositions



Teaching Value Creation at WPI



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= Lifelong value creators

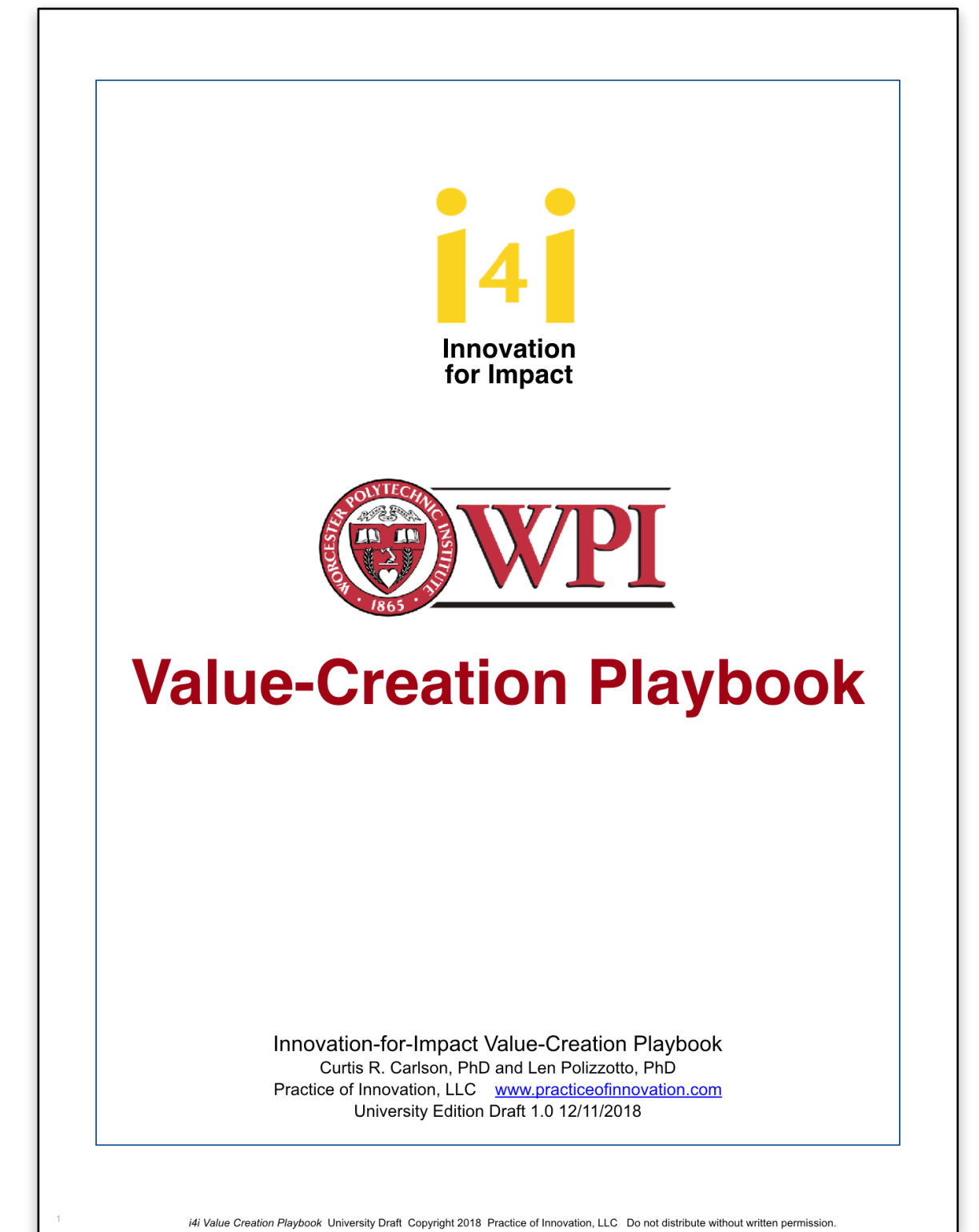
Value-creation curriculum

Team projects

Student: “Before we described the *projects* we were doing. Now we describe the *value* we are creating.”

Summary

- Talent and hard work is not enough
- Teach value creation with team projects
- Impact: 2-10 X improvement
- Essential lifelong skills



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Discussion

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