EPICENTER
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AUGUST 4-5, 2014 • STANFORD UNIVERSITY

Session D
The Lean LaunchPad (LLP) Model

Angela Shartrand, PhD
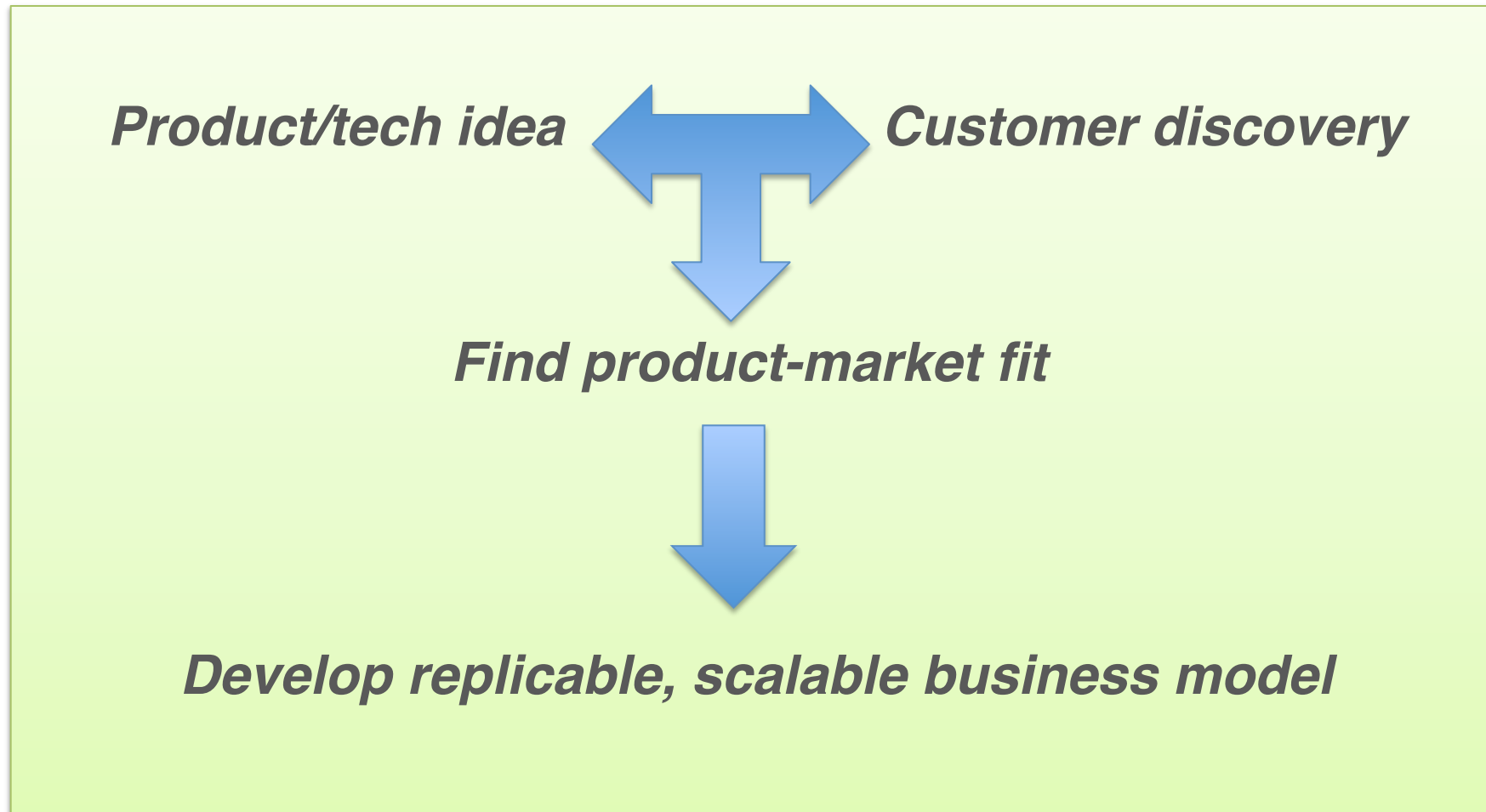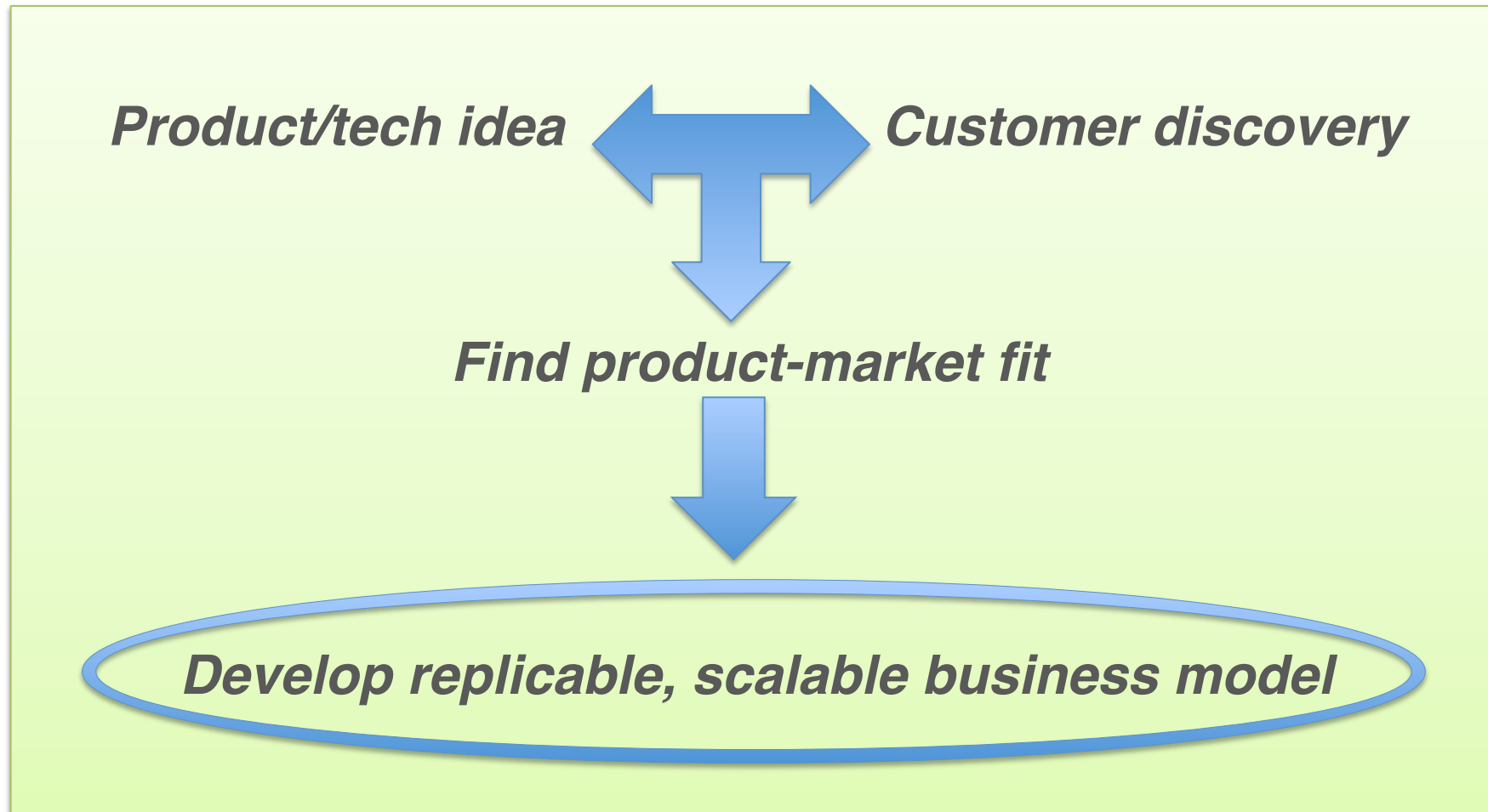*National Collegiate Inventors and Innovators Alliance (NCIIA)*

epicenter
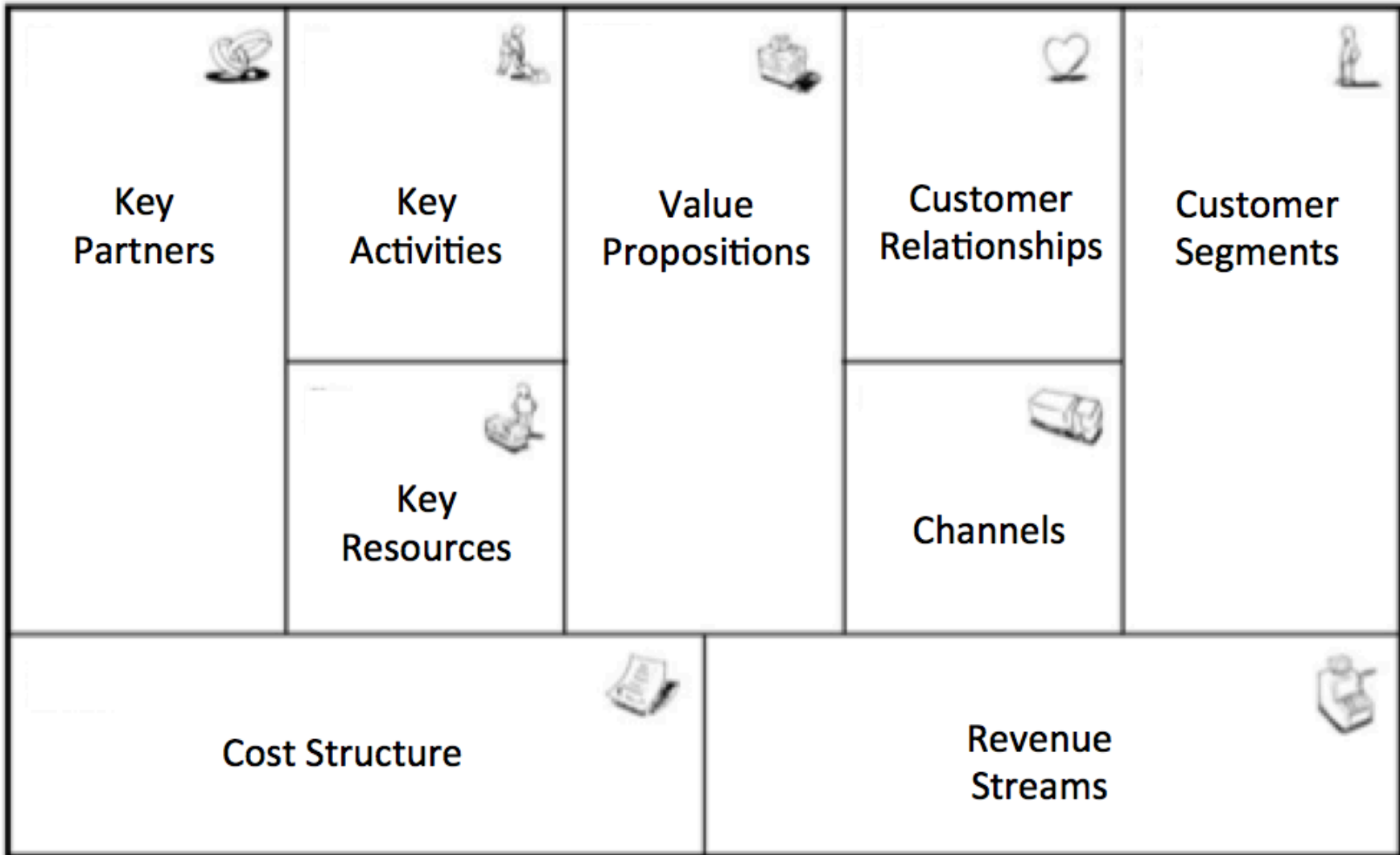National Center for
Engineering Pathways to Innovation

NSF

Stanford University

NCIIA

Distinguishing Goals of LLP

Product/tech idea ⬌ **Customer discovery**

Find product-market fit

Develop replicable, scalable business model

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Business Model Canvas Framework

Key Partners	Key Activities	Value Propositions	Customer Relationships	Customer Segments
	Key Resources		Channels	
Cost Structure			Revenue Streams	

Key Characteristics

- ***Business Model Canvas (BMC)*** as the framework

- ***Hypothesis testing*** *of BMC assumptions*

- ***Highly experiential,*** *uses* **flipped classroom**

- ***Aggressive pace*** *of customer interviews*

- ***Rapid cycles of learning and action***

- ***Pivots*** indicate progress

Ingredients for LLP Success

- *A product/technology idea*

- *High student motivation, willingness to commit time*

- *Willingness to "let go" of prior assumptions*

- *Ability to rapidly pivot and iterate based on customer feedback*

- *Mentors with industry, commercialization and entrepreneurial expertise*

Challenges to implementation noted by engineering instructors*

Students reluctant to enroll given the time commitment

Students uneasy contacting / interviewing customers

Students lack maturity, confidence, knowledge of key business concepts

Engineering students tend to focus on "building stuff" rather than on understanding customer needs

Not all students are enthusiastic about this type of course

Difficulty finding mentors and customers

*Source: Post-LLP follow up survey 2014

Benefits to engineering students noted by instructors*

Bridges the gap between engineers' idea of what's important (product) to what's really important (a product that a customer wants)

Clarifies the value proposition and who the customer is

Helps students get away from wanting the "perfect product" and technology for technology's sake / feature sets

Increase in interdisciplinary learning and experience

*Source: Post-LLP follow up survey 2014

Other potential benefits to engineers

Intensive practice communicating with customers

Macro-level understanding of ecosystems and markets surrounding a technology or product

Knowledge gains in a particular sector (e.g., medical, sustainable materials, transportation, etc.)

Broaden professional networks

Develop ABET skills a-k

Sample Learning Outcomes: Pivots & Insights*

Customer discovery lead us to a major pivot in changing from a model that would sell a product to a model that would sell a service…

MVP does not have to be the best product, but the minimum functional one and gets completed as we hear back from customers.

We were able to focus our value propositions on the customers' needs instead of just the cool stuff our technology can do.

The real world is not the same as we thought at all.

*Source: I-Corps End of Course attendee feedback

Some LLP Metrics: Near term

| Interviews completed | Hypotheses Validated or Invalidated | Pivots in Business Model Canvas |

Scalable and sustainable business model?

LLP is growing rapidly

Lean LaunchPad Educators

- 300+ people trained to teach LLP since 2012

- 200+ institutions

- 5,000+ students engaged

NSF I-Corps

- National Course offered 16 times

- 1,100+ have completed the course

- Regional innovations of model

I-Corps-L & NIH Pilots

- I-Corps-L Pilot course completed

- New I-Corps-L RFP

- NIH Pilot in Fall 2014

Widespread adoption/ adaptation of LLP methods

Research opportunities are emerging

Discussion/Implications for Engineering Education

- Research and assessment is still under development
- More faculty exposed to LLP
  - How do instructors adapt LLP model to engineering?
  - How do they overcome challenges in the engineering context?
  - Is there evidence of institutional / curricular change?
- More students exposed to lean and agile concepts
  - Do engineering students shift from technology-centric to customer-oriented?
  - Influences on recruitment and retention?
  - Influences on critical "professional skills"?
  - Influences on career outcomes?

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Thank you!

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