Changing Market Behaviors by Creating New Markets

Accelerating the Commercialization of Innovations

Marjorie McRae, Research Into Action
Innovation changes end user behavior…

… But how do we change the behavior of the innovators?

Entrepreneurial bootcamp, anyone?
DOE National Labs – Hubs of Innovators

• 17 DOE national laboratories –
  ▪ Home to world-class scientists and engineers
  ▪ Equipped with unique, advanced instruments

• Have originated numerous inventions that have significantly improved human lives

• Yet, chasm to be crossed from lab innovation to market uptake
  ▪ Economy-wide, 75% of start-ups fail
Boot Camp – Lean LaunchPad Model

• Who
  ▪ Stanford Business Professor Steve Blank

• Why
  ▪ Field of Dreams Approach to Commercialization

• What
  ▪ Lean LaunchPad Model
    – Business Model Canvas
    – Minimally viable product
    – 9 components
    – Customer discovery interviews, “hit the streets”
    – Hands-on learning, immediate feedback
Lab-Corps Pilot

• Modified Lean LaunchPad – focus on:
  ▪ Customer and partner discovery
  ▪ Refining the value proposition

• Piloted by EERE, interest in extending DOE-wide

• 7-week training
  ▪ 3 cohorts to date

• Training teams and crew
  ▪ Teams – principle investigator, entrepreneurial lead, industry mentor
  ▪ Faculty, lab pilot managers
Early Success: SonicLQ

- Start-up started 😊
- Industry mentor is CEO
- Principle investigator remains at lab

*I completely changed how I think about applied R&D. Now, I think far more clearly about how a technology might be commercialized, even when the concept is for early-stage R&D.*
Trainees Reported Gains in Understanding

<table>
<thead>
<tr>
<th>Customer segments, customer archetypes</th>
<th>Pre-Training</th>
<th>Post-Training</th>
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<tr>
<td></td>
<td>30%</td>
<td>100%</td>
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<tr>
<td>Customer relationships</td>
<td>30%</td>
<td>80%</td>
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<tr>
<td>Key partners, suppliers</td>
<td>20%</td>
<td>67%</td>
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<tr>
<td>Value propositions</td>
<td>60%</td>
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<td>Key activities, such as identifying distribution channels</td>
<td>10%</td>
<td>50%</td>
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“These six weeks of effort, while extremely demanding, has saved me a year of research that would have ultimately been unproductive.”

research into action™
“Invaluable. Many of our hypotheses were validated, and several were strongly invalidated. …It changed the way all of the Lab-funded technology teams perceive market demand for their innovations and added valuable insights as to the many obstacles to commercialization of any technology....”
## Comparison with Nonparticipants Suggests Pilot Effectiveness

<table>
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<tr>
<th>Response</th>
<th>Trainees (n=10)</th>
<th>Nonparticipants (n=9)</th>
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Nonparticipants showed some learning – attributed to participant peers and pilot recruitment process.
Faculty and Lab Managers Impressed

Training gave all involved a common lexicon for discussing technology value, bringing precision to thinking previously marked by generalities about market opportunities.

The initial BMCs [business model canvas] were almost universally wrong, unsuitable, and naïve. By the end, in nearly every case, we saw major pivots in the initial markets. We saw tremendous depth in the value proposition refinement, and much better judgment of the overall opportunity.

- Instructor
Several Nuts Remain to Be Cracked
Post-Training Support

• Lab researchers work on contracts –
  ▪ What will be funding mechanism for continued commercialization activities?

• Guidance needed to identify and navigate best commercialization path –
  ▪ Start-up
  ▪ License
  ▪ Sale
Scale-up, Transfer within Labs

• Training pipeline is resource intensive
  ▪ Faculty, lab managers
  ▪ Industrial mentors
  ▪ Trainee time away from research contracts

• Training pipeline is thus narrow

• Lab-Corps approach would constitute a sea-change

• Implications for lab model – research, not commercialization per se
Methods Like Lab-Corps Break Free of “Field of Dreams” Mentality

- Methods both train and push innovators toward understanding market response

- Innovation for market needs – rather than technological advancement – should spur greater market adoption of innovations

- That’s the theory, at any rate. Time will tell.
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