



Changing Market Behaviors by Creating New Markets

Accelerating the Commercialization of Innovations

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Innovation changes end user behavior...

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

Entrepreneurial bootcamp, anyone?

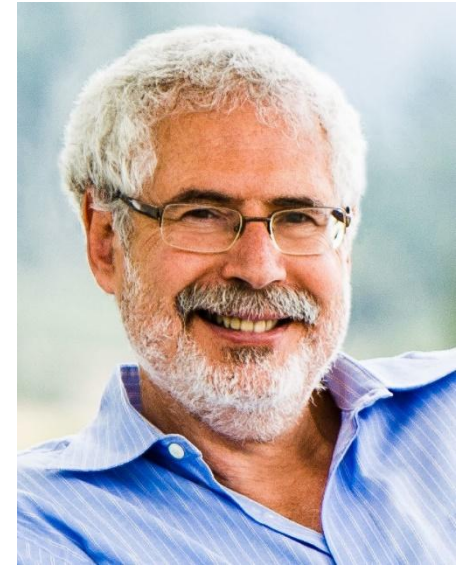


DOE National Labs – Hubs of Innovators

- 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



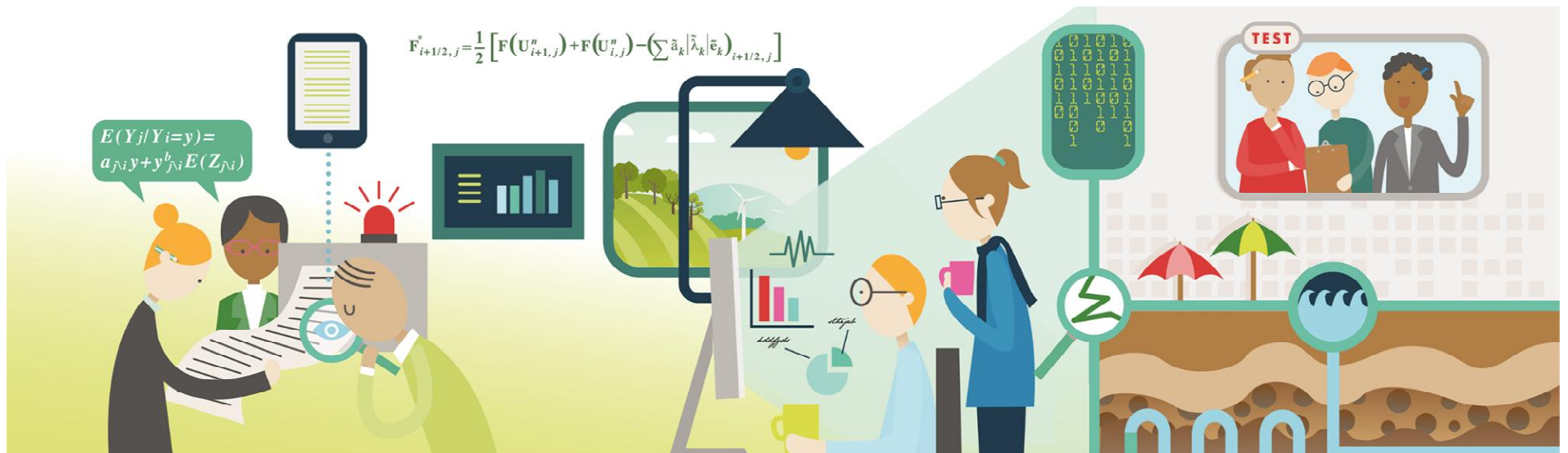
Lab-Corps Pilot

- 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

	Pre-Training	Post-Training
Customer segments, customer archetypes	30%	100%
Customer relationships	30%	80%
Key partners, suppliers	20%	67%
Value propositions	60%	100%
Key activities, such as identifying distribution channels	10%	50%

“These six weeks of effort, while extremely demanding, has saved me a year of research that would have ultimately been unproductive.”

“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

Response	Trainees (n=10)			Nonparticipants (n=9)		
	Pre-Survey	Post-Survey	Statistical Significance	Pre-Survey	Post-Survey	Statistical Significance
Customer segments, customer archetypes	30%	100%	p < 0.01	0%	56%	p < 0.01
Customer relationships	30%	80%	p < 0.05	0%	44%	p < 0.05
Value propositions	60%	100%	p < 0.05	11%	56%	p < 0.05
Key activities	10%	50%	p < 0.05	0%	22%	n.s.
Key partners, suppliers	20%	67%	p < 0.05	0%	22%	n.s.

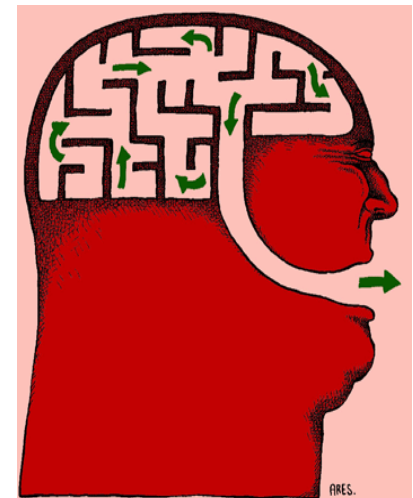
Nonparticipants showed some learning – attributed to participant peers and pilot recruitment process

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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