

Leveraging Resources of Partners to Optimize Value Creation and Capture

Arthur A. Boni, Ph. D.

“Open Innovation 101”
***Capital Efficient Business Models to Accelerate
Innovation***

Reference

- Arthur A. Boni and Christopher Moehle –
“Biotechnology Lessons for Robotics: Adapting
New Business Models to Accelerate Innovation” J.
Commercial Biotechnology, Vol. 20, pp. 37-44
(2014)

Background on OI

the pace of innovation is challenged

- Promoted by Henry Chesbrough
 - Exec Director of Open Innovation Institute at U. California, Berkeley (formerly at Harvard)
- New markets for knowledge driven by:
 - Increasing availability and knowledge of smart, creative workers worldwide
 - External options for ideas “on the shelf” or available (including crowdsourcing)
 - Global expansion of IT networks for global connect on a 24/7 basis
 - Growth and maturation of the VC market locally and globally
 - Increasing capacity and appetite of external partners for ideas
 - Capital inefficiency of “vertical integration”

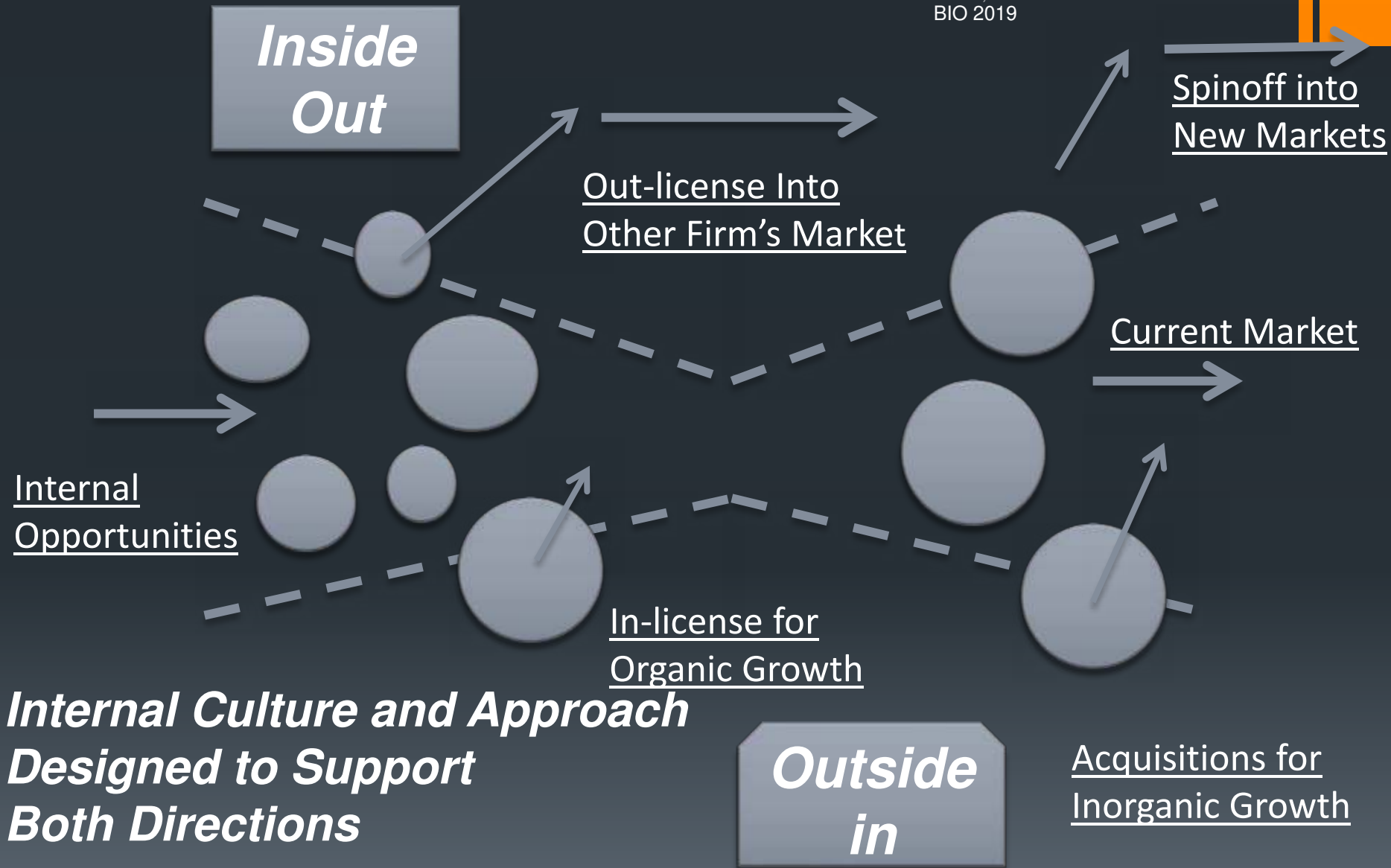
Open Innovation Facts

- ***Boundaries between firm and environment are now permeable***
 - Vertical integration (or owning the entire value chain) is “disrupted”
 - Partner for access to resources not controlled by the firm
 - Expand ideas & paths to market - knowledge is distributed widely, so buy or license it
 - Some ideas cannot or should not, be pursued by the firm directly, so spin them off
 - Christensen’s Innovators Dilemma and Solution
- ***Short list of who is using it:***
 - IBM, Intel, GE, Phillips, Google, Apple, Amazon, Siemens
 - Salesforce, Under Armour, 3M, Kraft, P&G
 - Eli Lilly/Innocentive, J&J, GSK
- 79% draw on innovations from outside their industry! (Nine Sigma & Harris Interactive)
- ***Open source and open innovation are complements***
 - Shared software
 - Projects or communities act as innovation intermediaries

Open Innovation 101 ,<-> bidirectional

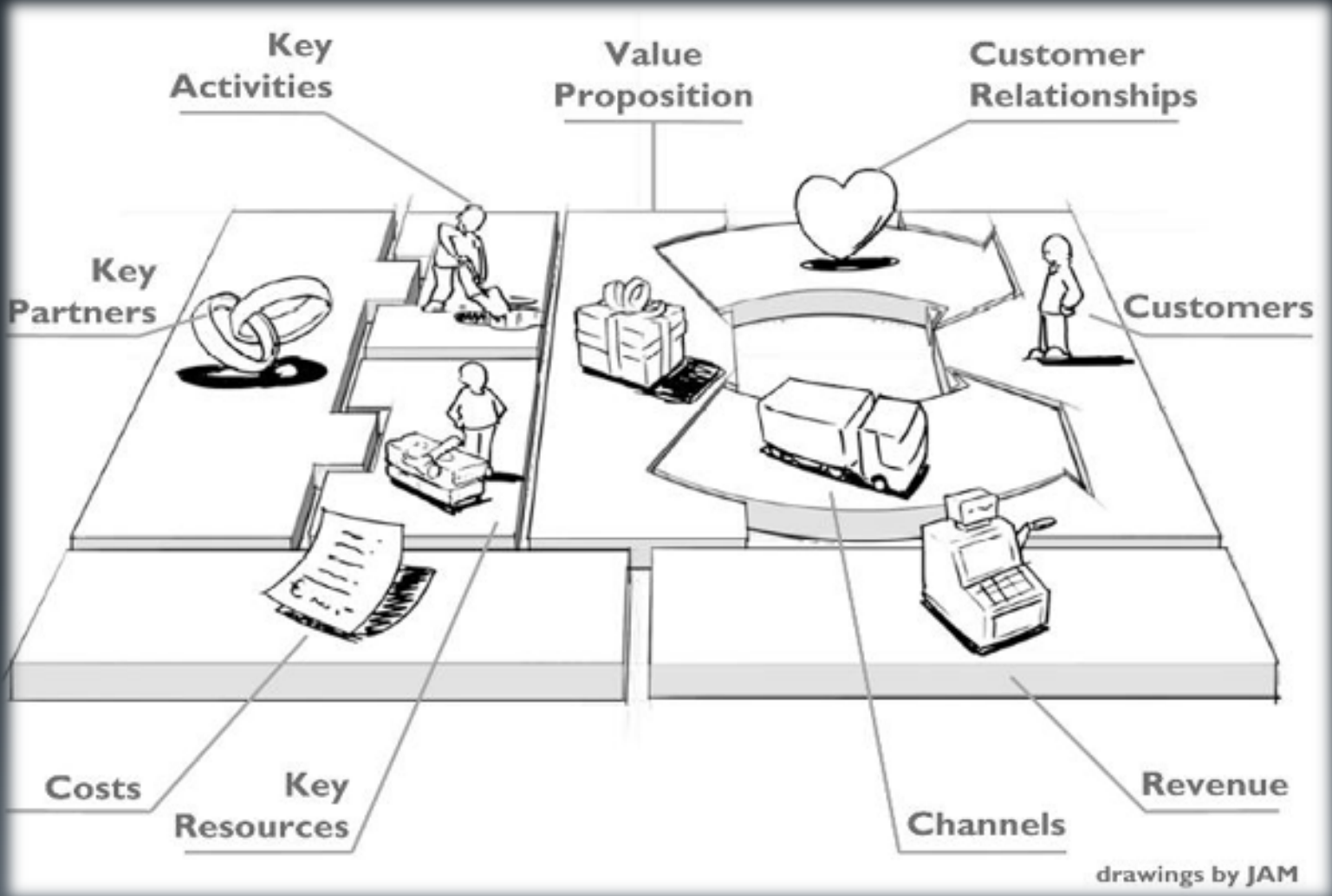
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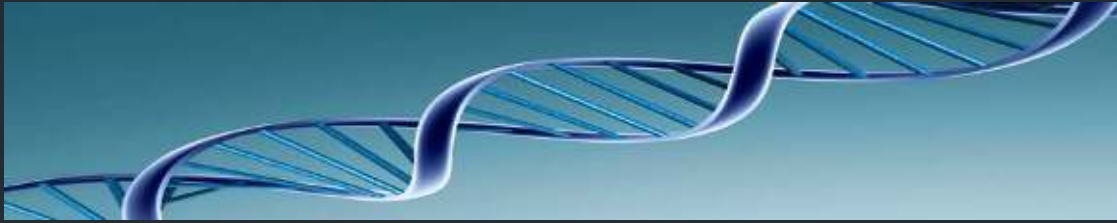
What parts should you rent?

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Minimize risk and capital to optimize value and build brand

- The Business Model contains all elements required by a firm to create, deliver and capture value.
- In developing and validating the business model elements, the firm can leverage the resources and channels of partners across the value chain, and share the value created and delivered with others.
 - Partner selectively and appropriately, e. g. clinical testing (CRO or pharma?); manufacturing (CMO?), channel access (pharma?),
 - Extreme version is "a virtual company", at least thru the early stages



DNA for Collaborative Innovation

An open innovation ecosystem (from Chesbrough)

- Collaborative networks – “outside in” and “inside out”
- Private/public partnerships

Cross-disciplinary, diverse, collaborative teams working across the product life cycle (from Pisano; Boni et al)

- Organizational structures to “translate research and technology from laboratory to market” efficiently
- Technology, Business, Design, + ---

Culture built around 5 behavioral traits: “base pairs” (from Christensen et al)

- Questioning, Observing, Experimenting, Networking + Associative Thinking (connecting the dots)

Three Fundamental Lessons

1. Focus on creative value sharing
2. Create stage-appropriate financing vehicles (to cross “valley of death”)
3. Develop and grow “seasoned” management teams through collaborations, accelerators, etc.

Lesson 1: Focus on Creative Value Sharing – the Collaborative Team

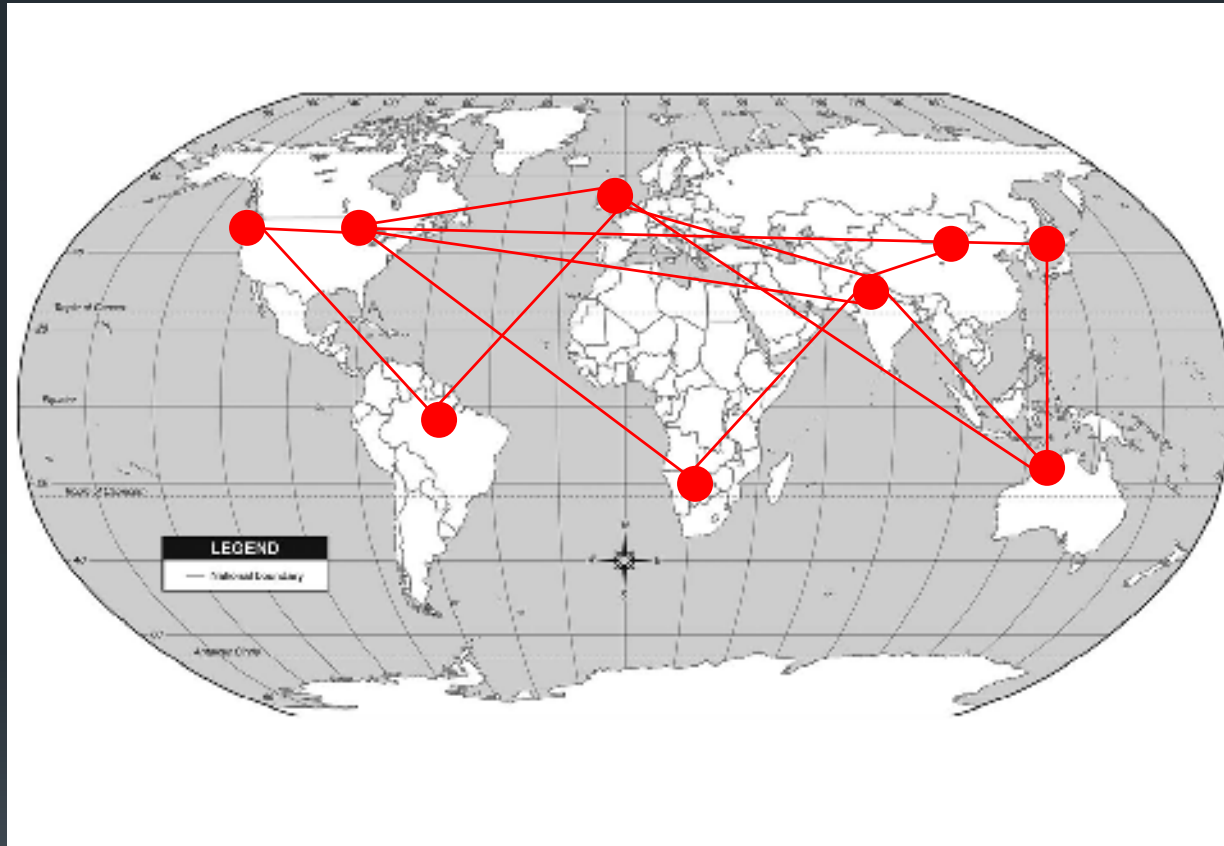


Leverage academia, emerging companies, and industry to form extended teams across the value chain.

Ex 1: Eli Lilly's FIP Net Model Spans the Biopharma Value Chain and Globe

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Ex. 2: Enlight Biosciences

Created by Pure Tech Ventures

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A consortium leveraging selected market driven opportunities

Lesson 2: Create “Stage Appropriate” Financing Vehicles

- Create “stage appropriate” financing vehicles for “crossing valley of death” from laboratory to clinic to patient
 - Third Rock Ventures – ab initio formation and growth of Foundation Medicine using open innovation principles learned at Millennium Pharmaceuticals
 - The Harrington Project/BioMotiv
- Partnerships, staged financing, team building from experienced industry “veterans”

Ex 1: Third Rock Ventures



Discover



Launch



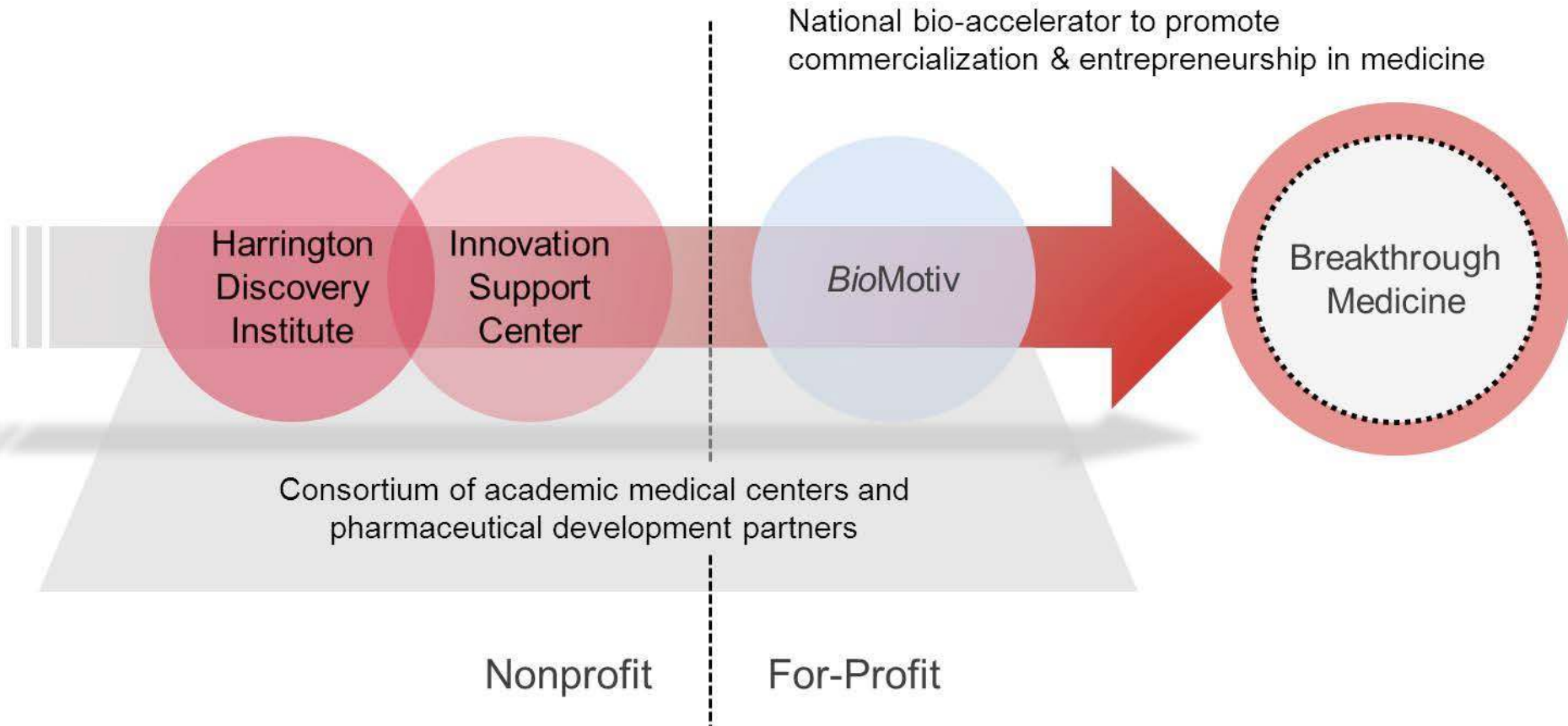
Build

Foundation Medicine – leadership in personalized medicine

Ex. 2 - Harrington/BioMotiv

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Lesson 3: Grow “Seasoned” Management Teams

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Leverage Collaborations and Accelerators

Accelerators in Bioparma are Evolving Jlabs, QB3, Rock Health, etc.

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Startup Accelerator



What We Do.



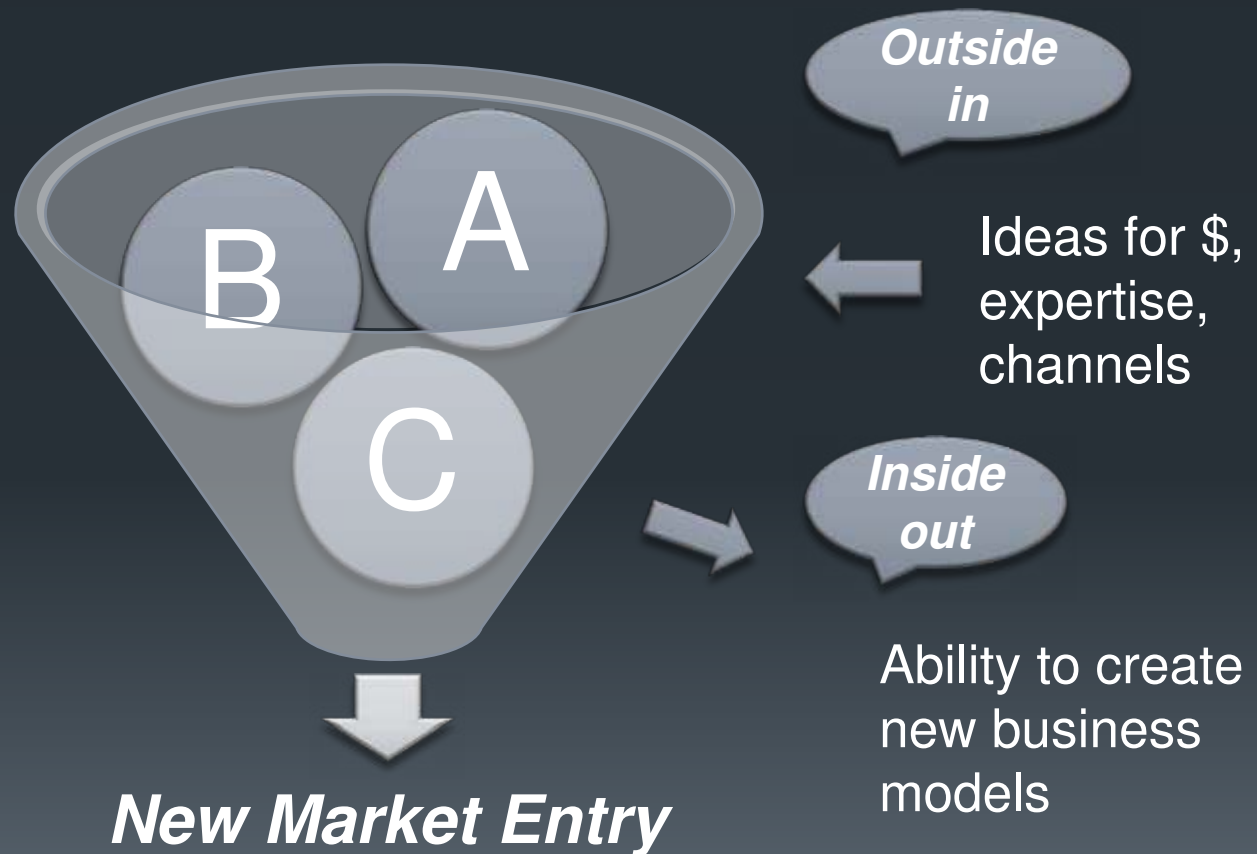
An example from enterprise software

Two Specific Best Practices

- Long development cycles and “high risk” suggest a portfolio-based approach
- While technology is a driver, need to instill market focus very early in the process – use the “lean startup methodology”

Portfolio Based Approach

Open Innovation -
collaborative
development across
innovation ecosystem



Instill Early Market Focus (with all P's in biopharma and medtech)

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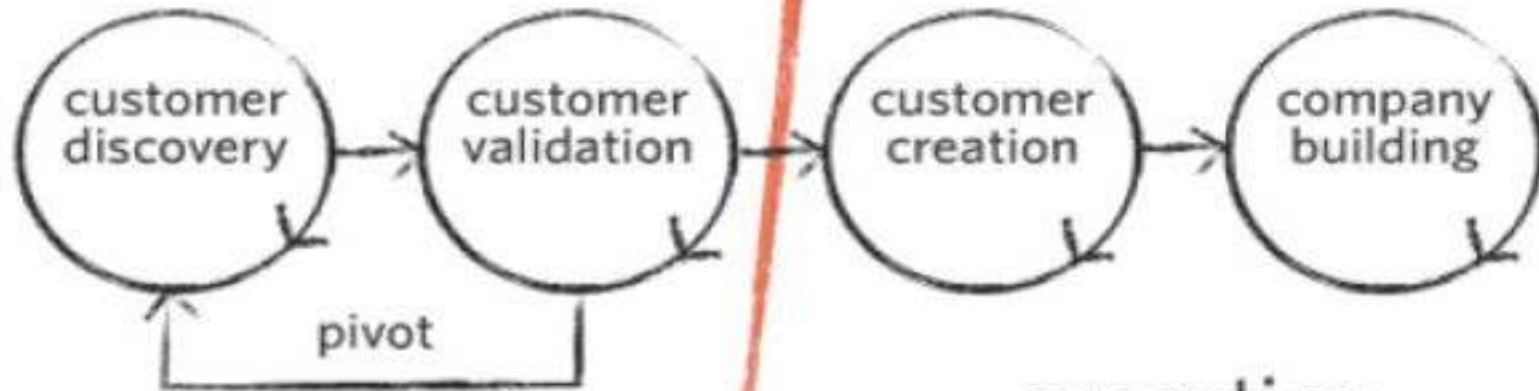
*Patients, Providers, Physicians,
Payers (and Partners)*

Fix it
here!

Validate
entry
point

MVP

search



execution

Build an OI Culture into your Business Model

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■ *“Defer to Open”*

- Innovation comes from anywhere in the organization
- Be receptive & seek ideas from the outside
- Be prepared to spin off “opportunities” that don’t fit current business model

■ *Operate Lean*

- Keep cost of capital low while addressing product/market fit iteratively
- Leverage partnerships across the value chain!

■ *Creative Financing*

- Use for-profit and not-for-profit sources and partnerships
- Milestone funding for potential new ventures

■ *Create and Grow Innovation Teams*

- Collaborative interdisciplinary teams evolve thru commercialization and growth phases
- Access expertise via extended networks