Ecosystems for Innovation

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McKinsey’s Value Pathways
Ecosystem Feedback Loop

Expected Value Creation

Exhibit 4: Applying early successes at scale could reduce US healthcare costs by $300 billion to $450 billion.

<table>
<thead>
<tr>
<th>Value at stake</th>
<th>Value</th>
<th>Key drivers of value</th>
</tr>
</thead>
</table>
| Right living  | 70–100| • Targeted disease prevention  
| Right care    | 90–110| • Data-enabled adherence programs |
| Right provider| 50–70 | • Alignment around proven pathways  
| Right value   | 50–100| • Coordinated care across providers  
| Right innovation| 40–70| • Shifting volume to right care setting  

McKinsey’s Value Pathways Ecosystem Feedback Loop

Source: © 2014 Violina Rindova

THE UNIVERSITY OF TEXAS AT AUSTIN
McCOMBS SCHOOL OF BUSINESS
Implied Actors in McKinsey’s Ecosystem

- Individuals
- Scientists
- Care Providers
- Administrators
- Medical Experts

Healthcare Eco System

- Federal, S&L, Government
- Long-Term Care
- Specialty Clinics
- Imaging Center
- Hospital
- Pharmacy
- Physicians
- Home Health
- Payers
- Pharmacy Benefit Management
- Employers
- Private Insurance
- Finance
- Reference Laboratory
- Emergency Services
- Ambulatory Centers
- Screening Registers
- Medical Supply
- Public Health
Overview

- Three design visions of innovation ecosystems
  - Value network
  - Open innovation platform
  - Social change lab

Ecosystem Basics

- The collaborative arrangements through which organizations combine their resources, capabilities, and products to offer a coherent, customer-facing solution.

- When they work, ecosystems allow organizations to create value that no single one of them could have created alone.

- Ecosystems improve the management of critical interdependencies to increase benefits or reduce costs.

- Along with new opportunities, innovation ecosystems also present new coordination risks.
Ecosystem Design Visions

- Masterminding a value network
- Facilitating collaboration through open innovation
- Stimulating participation through social change labs

Masterminding a Value Network

- Design logic and approach:
  - Attend to, and mitigate, coordination risks
  - Identify, understand, and incentivize relevant players
The Value Net

A model of complex strategic landscape where both competition and collaboration occur

Masterminding the Ecosystem

- “The common mistake that managers make is to plan out the full ecosystem, pick their position within it, and act with all haste to create and defend their role in delivering an integrated product or service to the end customer.” (Adner, R. 2012. The Wide Lens)

- Risk of overestimating the benefits from pooled resources and capabilities

- Risk of underestimating the coordination challenges (someone else’s problem)
Ecosystem Risks

Innovation ecosystems are characterized by three fundamental types of risk:

- **Initiative risk**: The uncertainties of managing a project
- **Interdependence risk**: The uncertainties of coordinating with complementary innovators
- **Adoption risks**: The uncertainties presented by the adoption process across the value chain.

Initiative Risk

- Assess feasibility of your own innovation contribution
  - Traditional due diligence with organizational stakeholders – esp. employees and suppliers
  - Historical precedents and experience
Interdependence Risk

- Assess coordination as the joint probability of all relevant projects.

- A scenario:
  - Four suppliers commit their best resources to their respective projects.
  - All assess the likelihood of delivering their part on time as 90%.
  - True probability of the joint project is $0.9 \times 0.9 \times 0.9 \times 0.9 = 66\%$.
  - One responsible for a particularly challenging effort has a 20% success probability.
  - Revised estimate is $0.9 \times 0.9 \times 0.9 \times 0.2 = 15\%$.

Adoption Risks

- Assess the costs and benefits of adoption for each intermediary along the chain.

- If benefits don’t exceed costs at every adoption step, intermediaries will not move your offering.

- Costs includes all costs:
  - Direct: the price we charge.
  - Indirect: switching costs, required complementary investments, the risk of something going wrong.
Designing Value Networks

- Identify the relevant players:
  - Co-innovators
  - Intermediaries

- Understand: Analyze their preferences and strategies

- Incentivize: Align incentives to ensure cooperation

Mapping the Ecosystem: Electronic Health Records

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### Understanding the Players

<table>
<thead>
<tr>
<th>Partner</th>
<th>Relative Benefit</th>
<th>Total Cost</th>
<th>Surplus/Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>IT Provider</td>
<td>High price ($20-$80 mil per hospital)</td>
<td>Big upfront investment, costly sales</td>
<td>8-5=+3</td>
</tr>
<tr>
<td>Hospital Admin</td>
<td>Errors avoided,-- approx. 100,000 deaths a year</td>
<td>High price, staff retraining, maintenance cost, opportunity costs</td>
<td>6-4=+2</td>
</tr>
<tr>
<td>Hospital Departments</td>
<td>Intake, discharge, and hand-offs improve</td>
<td>Transition costs, lower if the department follows</td>
<td>3-2=+1</td>
</tr>
<tr>
<td>Doctors and nurses</td>
<td>Agree in principle</td>
<td>Learning costs, productivity declines (20% for up to 6 months)</td>
<td>0-2=-2</td>
</tr>
<tr>
<td>Patient</td>
<td>Avoids low probability risk</td>
<td>0</td>
<td>.1=0=+.1</td>
</tr>
<tr>
<td>Aggregator</td>
<td>Captures value of aggregation</td>
<td>Some coordination costs</td>
<td>9-1=8</td>
</tr>
</tbody>
</table>

### Ecosystems Leaders versus Followers

- **Leaders**
  - Design a value proposition for the system for everyone to gain
  - Creates the ecosystem’s structure – players and relationships
  - Works with limited information whether the opportunity is real
  - Convinces followers of potential and value

- **Followers**
  - Make smaller upfront investments
  - Focus on their own project contributions
  - Conduct due diligence on the right leader
  - Have less control over the ecosystem emergence

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The Leader’s View

- “We are willing to plant seeds and wait a long time for them to turn into trees… When we plant a seed, it tends to take five to seven years before it has a meaningful impact on the economics of the company.”

- “It’s important to be stubborn on the vision and flexible on the details. I talked about the example of our marketplace business – that’s a good example of where we were relentless on the vision. We made a lot of twists and turns in the execution. We worked on it for a few years. But we didn’t give up on the vision” (Jeff Bezos, quoted in *Harvard Business Review*, 2007)

Ecosystem Scale

- Choosing how to trade off the size of the market opportunity and the magnitude of the inherent ecosystem risk is the essence of innovation strategy:
  - Multiple target markets are available for almost any innovation.
  - Ecosystem maps for different target markets can vary dramatically, even when the core innovation remains the same.
  - A complete view of the different ecosystems is the key to effectively assessing your options
Ecosystem Masterminding Success Factors

- Project execution capabilities
- Partnering and collaboration capabilities
- Long-term horizon

Facilitate Collaboration through Open Innovation

- Design logic and approach:
  - Create intellectual commons by pooling knowledge for mutually beneficial exchanges
  - Grant access to a large number of individuals
## The Open Innovation Approach

Example: P&G Connect and Develop
www.pgconnectdevelop.com


<table>
<thead>
<tr>
<th>CLOSED INNOVATION PRINCIPLES</th>
<th>OPEN INNOVATION PRINCIPLES</th>
</tr>
</thead>
<tbody>
<tr>
<td>The smart people in our field work for us.</td>
<td>“Not all of the smart people work for us.” We need to work with smart people inside and outside our company.</td>
</tr>
<tr>
<td>To profit from R&amp;D, we must discover it, develop it, and ship it ourselves.</td>
<td>External R&amp;D can create significant value; internal R&amp;D is needed to claim some portion of that value.</td>
</tr>
<tr>
<td>If we discover it ourselves, we will get it to market first.</td>
<td>We don’t have to originate the research in order to profit from it.</td>
</tr>
<tr>
<td>The company who gets an innovation to market first, will win.</td>
<td>Building a better business model is better than getting to market first.</td>
</tr>
<tr>
<td>If you create the most, and the best ideas in the industry, you will win.</td>
<td>If you make the best use of internal and external ideas, you will win.</td>
</tr>
<tr>
<td>We should control our IP, so that our competitors don’t profit from our ideas.</td>
<td>We should profit from others’ use of our IP, and we should buy others’ IP whenever it advances our own business model.</td>
</tr>
</tbody>
</table>

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## Open Innovation and Coordination

- Knowledge – a special “non-rival” resource – does not diminish with consumption
- Each contributor may improve quality and variety
- Contributors attract complementors
- Contributions span idea generation and idea selection

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Advantages of Open Coordination Ecosystems

- Better knowledge: Breadth and depth of the pooled knowledge is greater than the sum of the parts.

- Low cost: Without direct monetary compensation vast resources are contributed to open innovation projects.

- Unpredictable upside:
  - The end use, product or service is not predetermined by ecosystem leader.
  - Increasing scope for innovation on complementary products, services, and technologies.

An Experiment in Open Innovation

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The Traditional Integrated Model

Innovating the Research Process: Search for New Questions

- “To raise new questions, new possibilities, to regard old problems from a new angle, requires creative imagination and marks real advances in science.” (Albert Einstein)

- Harvard Catalyst made an open call for ideas in the form of a prize-based contest to discover potentially relevant questions not currently under investigation or largely

- Partnered with the InnoCentive online contest platform broadcast invitations to participate in a challenge titled “What do we not know to cure Type 1 diabetes?”

- Offered $30,000 in awards and did not require transfer of exclusive intellectual property rights

- By making a submission, the contestant granted Harvard Catalyst a royalty-free, perpetual, non-exclusive license to the idea

- Detailed coding revealed that the proposals brought new topics for consideration
The Contributors

- 779 people opened the link at InnoCentive’s website
- 163 individuals submitted 195 solutions, of which 150 submissions were deemed ready for evaluation.
- Submissions encompassed a broad range of therapeutic areas including immunology, nutrition, stem cell/tissue engineering, biological mechanisms, prevention, and patient self-management.
- Contributors:
  - Represented 17 countries and every continent except Antarctica.
  - 2/3 from United States
  - 41% from Harvard faculty, students or staff, half of those from Harvard Medical School.
  - Ages ranged from 18 to 69 years, mean of 41

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The Open Innovation Model

Open Coordination Success Factors

- An appealing knowledge pool, which may include problems and solutions
- Governance mechanisms to protect values and enforce norms
- Intrinsic and extrinsic rewards to ensure sustainability

Stimulating Participation

- Design logic and approach:
  - Allow problems, collaborations, and solutions to emerge
  - Articulate a change intent and domain
  - Create a flexible collaborative structure for exploring problems and solutions
The Social Lab Approach

- “In a change lab, a group of stakeholders work to surface their own ideas of what will effectively shift a system from its current unacceptable state to a desired future state” (Hassan, 2013)

An Open Innovation Platform with a Twist

- Focused on “complex challenges”
- Unlike technical problems, where problem definitions can be specified and alternative solutions defined by experts, in complex challenges the problems and the solutions are contested
- Diverse stakeholders with pluralistic interests are involved
Enable and Leverage Emergence

Four Values from “The Manifesto for Agile Software Development”

- **Individuals and interactions** over processes and tools
- **Working software** over comprehensive documentation
- **Customer collaboration** over contract negotiation
- **Responding to change** over following a plan

Stimulating Participation Success Factors

- Change-oriented intent
- Respect for emergence (of problems and solutions)
- Agile action
- Pragmatic learning
## Push versus Pull Innovation Systems

<table>
<thead>
<tr>
<th>Push</th>
<th>Pull</th>
</tr>
</thead>
<tbody>
<tr>
<td>Centrally-managed</td>
<td>Decentralized</td>
</tr>
<tr>
<td>Rely on control</td>
<td>Rely on initiative</td>
</tr>
<tr>
<td>Tightly coupled</td>
<td>Loosely coupled</td>
</tr>
<tr>
<td>Extrinsic rewards</td>
<td>Intrinsic rewards</td>
</tr>
<tr>
<td>Participation regulated</td>
<td>Participation open</td>
</tr>
<tr>
<td>Organizational boundaries</td>
<td>Networks and meshworks</td>
</tr>
<tr>
<td>important</td>
<td></td>
</tr>
<tr>
<td>Predictable, relatively</td>
<td>Unpredictability, complex</td>
</tr>
<tr>
<td>stable environments</td>
<td>interactions, and disruption</td>
</tr>
</tbody>
</table>

"I expect you all to be independent, innovative, free-thinking Nurses who will do exactly as I say"