How Open Innovation Compresses Time-to-Market

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Center for Strategic Supply Leadership
Outline

1. Introduction
2. Definition & Background
4. Discussion Topics
   - Make vs. Buy
   - Open Innovation Checklist
5. Future Trends
Definition & Background

Henry Chesbrough definition:

“Open innovation is a paradigm that assumes that firms can and should use external ideas as well as internal ideas, and internal and external paths to market, as the firms look to advance their technology.”

Outsourced R&D, technology collaboratives and licensing have been around for years so what is new?

1. Internet based networks – both technical and market solutions
2. Prominent practitioners
3. Improved product innovation models

More Background

1. The increasing capability of external suppliers
   - Nine Sigma
   - InnoCentive
   - Your Encore

2. Prominent Practitioners
   - P&G, Kimberly-Clark
   - Medtronic
   - Whirlpool

3. PDMA/MRT Co-Development Conference
   - What are the Open Innovation processes, tools and metrics?
Today’s Focus

We will focus on new product and service innovation and how open innovation is an approach that can reduce time-to-market.

Time-to-market is defined as the time from idea or opportunity identification until full commercial launch.
Ansoff Product Market Matrix

Our Focus

- **Current Product**
  - Market Penetration
  - Product Development

- **New Product**
  - Market Development
  - Diversification

- **Current Market**
- **New Market**
Lean Innovation Framework

- **Strategic**
  - **Portfolio**
  - **Resources**

- **Operational**
  - **Idea**
    - **Discovery**
  - **Business Case**
    - **Development**
  - **Launch**

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What is the Prize?

Reduce Time To Market by 25-50%.

Increase the number of new products launched each year and grow market share.

As Reported in PDMA Foundation's 2005 Comparative Performance Assessment Study.
Case Study #1 - Overview

• The External Resource: Your Encore
• The Approach: Idea Connection
• The Problem: Need Technical or Market Info
• The Example: Multiple
• The Results: Varied
Establish Direction
- Validate R&D plan
- Identify risk areas
- Fortify IP portfolio

Explore Options
- Project ‘Snapshot’
- Grasp marketplace relevance
- Refocus resources

Assess Technology
- Fill capability gaps
- Identify industry whitespaces

Peer Review Progress
- Share org. knowledge
- Validate tech’s value

Results
- Granted 8 patents after session to outline new technology white spaces and develop IP strategy
- Identified and commercialized four major tech platforms, helping reverse a 7 year market share decline
- Discovered patent claims did not cover key actives; recommended experimental work to strengthen IP
- Halted development program after peer review challenged ability to monetize new technology
Case Study #2 - Market/Business Problem

- The External Resource: Bally/Design Continuum
- The Approach: PVM (Product Value Matrix)
- The Problem: Many Ideas – Which Are Best?
- The Example: Lincoln Electric
- The Results: 108 New Products in 9 Months
Bally/DC instituted an innovation management process (PVM\textsuperscript{sm}) which gave Lincoln project teams the resources to identify all the stakeholders (internally & externally) and understand all possible product interactions. The tools and techniques of PVM\textsuperscript{sm} allowed Lincoln to:

- Increase their pipeline with specific market/user-centered ideas;
- Hone in on key market opportunities faster with greater likelihood for success;
- More efficiently manage product portfolios and product life cycles;
Results:

• Lincoln developed 108 NEW products in 9 months!

• Increased equipment sales by an average of 30%.

• Increased market share in various categories.
Case Study #3 – Problem Technical

- The External Resource: InnoCentive
- The Approach: The Challenge
- The Problem: Removing Frozen Oil from the Sea
- The Example: Oil Spill Recovery Institute
- The Results: 30 Year Problem Solved Within 2 Months
• **Oil Spill Recovery Institute (OSRI)**
  
  • Focused on recovery of oil and reduction of environmental damage related to Exxon Valdez Oil Spill

• **Problem** – Could not separate frozen oil from water in collection barges. (aka - Breaking Viscous Shear of Crude Oil)

• **Solution** – An Illinois Chemist from the *Concrete Industry* wrote the award winning abstract based on a technique that has been used for years to move liquid concrete.

• **Result** – The chemist won $20,000 and the oil industry solved a 30+ year problem within 2 months after posting it on the Web

“If this Challenge were easily solved by the people within the industry, it would have been solved earlier. The InnoCentive process allows us to step outside the box and look at more creative solutions” – Scott Pegau, OSRI
Exercise

- Analyze a product or development success.
  - How did it succeed?
  - Why did it succeed?
  - What was the economic impact on your company?
  - What was the non-economic impact on your company?
- Take 5 minutes and then a brief report
Case Study #4 – Business Problem

- The External Resource: Nine Sigma
- The Approach: Targeted Search
- The Problem: Quickly Develop a New Polymer
- The Example: Major Chemical Company
- The Results: Rapid Identification of Four Business Partners
CASE STUDY: Chemicals
Rapid Identification and Vetting of Research Partners

THE CHALLENGE:
A Major Chemical and Coatings Company needed to quickly identify research partners for silicone-based polymers for a multi-year, $200K+ program within 4 weeks.

OUR APPROACH:
Through NineSigma’s Targeted Search and facilitated evaluation, all respondents were rapidly categorized against the jointly developed criteria, leading to final partner selection within 4 weeks.

THE OUTCOME:
Four research partners were identified and vetted within 4 weeks.

“We were very worried that we wouldn’t find anyone we could work with. Now we have partners we never would have found any other way.”
- Project Leader
Case Study #5 – Improved Process

• The External Resource: Lean Innovation Partnership
• The Approach: Value Stream Mapping
• The Problem: New Product Process Too Slow
• The Example: Thermodisc
• The Results: Time-to-Market Reduced by 25%
Traditional Stage Gate

Gate 1: Ideation
- Idea Submission

Gate 2: Concept Feasibility
- Project Charter

Gate 3: Concept Development
- Business Plan

Gate 4: Design Validation
- Updated Plan & AR

Gate 5: Ramp Up
- Final Check

Process: Launch Production
- Process Audit

Traditional Stage Gate:
- Ideation
- Concept Feasibility
- Concept Development
- Design Validation
- Ramp Up
- Launch Production

Idea Submission
Project Charter
Business Plan
Updated Plan & AR
Final Check
Process Audit
Chesbrough’s “Permeable” Pipeline

Open innovation

Other firm’s market
Licence, spin out, divest
Our new market

Internal technology base

Internal/external venture handling

External technology insourcing

External technology base

Our current market

Stolen with pride from Prof Henry Chesbrough UC Berkeley, Open Innovation. Renewing Growth from Industrial R&D, 10th Annual Innovation Convergence, Minneapolis Sept 27, 2004
Harley Davidson’s Swirls & Bins

The Swirl Model

- Zone of Consideration
- Acceptance

IDEAS

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Linking Lean with Innovation™

Discover

Develop
<table>
<thead>
<tr>
<th>Traditional Mfg Waste</th>
<th>NPD Waste</th>
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<tbody>
<tr>
<td>1. <strong>Defects</strong></td>
<td></td>
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<tr>
<td>2. <strong>Over-production</strong></td>
<td></td>
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<tr>
<td>3. <strong>Waiting</strong></td>
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<tr>
<td>4. <strong>Not Using Employees</strong></td>
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<tr>
<td>5. <strong>Transportation</strong></td>
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<tr>
<td>6. <strong>Inventory</strong></td>
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<tr>
<td>7. <strong>Motion (Unnecessary)</strong></td>
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<tr>
<td>8. <strong>Extra Processing</strong></td>
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Value Stream Mapping: Swim Lane Exercise
Leaned Out NPD Process

- Market Research
  - Voice of the Customer
- Ideation
- Concept Feasibility
- Proof of Concept
- Validate Design
  - And Business Case
- Ramp Up
- Wrap-Up
  - Project Closure
- "Lean"
  - Business Plan
- Business Plan
  - & AR Approval
- Launch
- Process Audit

Time – To – Market: 25-50% Reduction
“Therm-O-Disc contracted with Mark to help us streamline our New Product Development process and to implement portfolio and resource management systems. He applied Lean principles to achieve a 25-30% improvement in product development cycle time, and we now conduct regular portfolio/resource reviews to prioritize/align activities with company strategic objectives.”

Steve Armstrong, Director of New Product Development
Make vs. Buy Discussion

- Cost (fixed, variable)
- Cost of Time
- Technical Risk & Market Risk
- IP Value
- Aftermarket Considerations
- Supplier Business Model
  - Are we strategic to them?
  - What will be their pricing power?
Open Innovation Checklist

1. Not invented here syndrome becomes “proudly invented elsewhere.”
2. Each party should define what it wants to get out of the relationship.
3. Who owns the intellectual property in the partnership must be clear.
4. Each side should allocate a senior person with overall responsibility for the success of the partnership. (Management Commitment)
5. Have you consumed your internal capacity?
6. Key obligations, expectations and milestones should be established early.
7. Have a documented process & metrics.
Exercise

- Analyze a product or development failure.
  - How did it fail?
  - Why did it fail?
  - What was the economic impact on your company?
  - What was the non-economic impact on your company?
- Take 5 minutes and then a brief report
1. What is the optimal organizational structure to support and grow your company's open innovation capabilities?

2. How to evolve your company culture to embrace innovation.

3. What types of rewards and incentives are necessary to drive open innovation performance?

4. How to advance open innovation efforts through early supplier involvement.

5. How to expand your open innovation processes across multiple business functions and levels.

6. Effective strategies to manage multiple open innovation partners on a single open innovation initiative.

http://www.codevpd.org/
Future Trends

1. Resistance to internal hiring in R&D (and elsewhere)
2. Industrial design permeates B2B products
3. Consortia and collaborations
   • “Many to Many” open innovation (NineSigma)
4. Shorter product life cycles
5. Establishment of Open Innovation process & metrics