Rapid Learning Cycles and Lean Product Development

Why and How Rapid Learning Cycles Became My Area of Concentration

Katherine Radeka
Katherine Radeka

Katherine Radeka has a rare combination of business acumen, scientific depth and ability to untangle the organizational knots to remove the barriers to innovation.

She has a global reach with clients in Europe, North and South America, Asia, and Australia/New Zealand.

She currently supports over 150 implementations of Rapid Learning Cycles through the Rapid Learning Cycles Certified™ Professionals Community.

Katherine has climbed seven of the tallest peaks in the Cascade Mountains and spent ten days alone on the Pacific Crest Trail until an encounter with a bear convinced her that she needed a change in strategic direction.
The Problem:
Long Slow Learning Cycles

- Problems with Product Development
- Root Cause: Long, Slow Learning Cycles
- Root Cause: Inability to Capture Extensible Knowledge
The Problems of Product Development

Definition  
Concept  
Design  
Validation  
Launch

- Missed Launch Dates
- Long Time-to-Market
- Disappointing ROI for New Products
- Cost Overruns
- Warranty Costs
- Frustrated Customers
- Disappointed Business Partners
- Lack of Confidence in R & D’s Abilities
- Happy Competitors
Root Causes of the Problems of Product Development

- **Definition**
  - Reinvention
  - Missed Requirements
  - Misunderstanding of Customer Needs and Business Value

- **Concept**
  - Unable to Kill Programs

- **Design**
  - Late Supplier Selection & Validation
  - Late System Integration
  - Changing Requirements

- **Validation**
  - Late Changes for Production
  - Costly Build-Test-Fix Loops

- **Launch**
  - Late System Integration
The Core Root Cause: One Slow Learning Cycle
Why Is This a Problem?

Make decisions here based on incomplete knowledge.

Revisit those decisions here when detailed product/process design and verification testing uncovers problems with the decisions.
The Opportunity: Rapid Learning Cycles

- Pull Learning Forward
- Capture Extensible Knowledge
- Results Companies Achieve
The Solution: Pull Learning Forward and Push Decisions Later

- **Definition**
- **Concept**
- **Design**
- **Validation**
- **Launch**

Pull Learning Forward to Identify and Remove Obstacles

Push Decisions Later to Preserve Flexibility
Break Up Long Slow Learning Cycles

Rapid Learning Cycles

Definition | Concept | Design | Validation | Launch

Pull Learning Forward to Identify and Remove Obstacles

Push Decisions Later to Preserve Flexibility
Why Rapid Learning Cycles Accelerate Development

Rapid Learning Cycles

Definition → Concept → Design → Validation → Launch

Learn as much as possible here to uncover problems early and make better decisions

Maintain flexibility as long as possible here since there will always be some things that we still need to learn.
Build Extensible Knowledge to Go Even Faster

Rapid Learning Cycles Build Extensible Knowledge . . .

Capture extensible knowledge so that future program teams don’t have to re-learn the same things

. . . To Accelerate Future Development Programs

Leverage extensible knowledge to focus a team’s rapid learning cycles on new ideas and product-specific details.
Demonstrated Results

Products Delivered On Time
Time for Innovation
Satisfied Customers
Faithful Execution of the Product Vision
Partner Confidence in R & D
Sustainable Competitive Advantage
Fun

Launch Delays
Time Wasted on Unproven Ideas
Disappointing Products
Late Found Defects & Firefighting
Warranty Costs and Product Recalls
Bad News to Stakeholders
Reinvention
Stress
From Lean to Rapid Learning Cycles

My Journey
My Recommended LPD Practices Ladder (circa 2008)

- **Chief Engineer:** Develop lean leadership in the product teams.
- **Visible Rhythmic Processes:** Create pull and flow in PD processes.
- **Set-Based Design:** Investigate sets of alternatives early in design.
- **Value Driven Architecture:** Design in value for the whole system.
- **Management by Proposal:** Use shared knowledge to make decisions.
- **Visible Knowledge:** Share knowledge with visual models.
- **LAMDA:** The cycle of knowledge creation – PDCA for Knowledge Workers.
The Roots of the Rapid Learning Cycles Framework

- Agile Development's Project Management System for Managing High Uncertainty
- Insights from Lean Startup, Design Thinking and other effective Innovation Management practices
- The Lean Product Development Practices That Are Proven to Deliver Results
- Effective Platform and Product Family Strategy and Development Practices

Rapid Learning Cycles Framework
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Rapid Learning Cycles Framework
Most Groups Never Went Beyond These Three – Then Stopped

<table>
<thead>
<tr>
<th>Category</th>
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Lean Alone Isn’t Sticky! Here’s Why. . .

Problems!
Defects, Warranty Claims, Production Problems, Cost

Innovation!
A Shipped Product
Happy Customers
Organic Growth
BUT – Lean Alone Isn’t Sticky! Here’s Why. . .

Problems!
- Defects
- Warranty Claims
- ECOs
- Cost
- Waste
- Rework

Innovators Focus Here!

Lean Focus Is Here

Innovators Focus Here!
Agile Focuses on Getting Stuff Shipped

Rapid Learning Cycles Framework

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Agile Language Increases Stickiness

A Shipped Product
Happy Customers

Problems!
Defects, Warranty
Claims, ECOs, Cost,
Waste, Rework

Agile Focus
Is Here!

Lean Focus
Is Here

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Agile Practice #1: Develop Knowledge in Short, Continuous Cycles
Agile Practice #2: Maintain a Regular Cadence to Manage Irregular Work

The Learning Cycle is the heartbeat of the program
Agile Practice #3: Capture Knowledge in Real Time

Project Knowledge Library
Chief Engineer: Develop lean leadership in the product teams.

Visible Rhythmic Processes: Create pull and flow in PD processes.

Set-Based Design: Investigate sets of alternatives early in design.

Value Driven Architecture: Design in value for the whole system.

Management by Proposal: Use shared knowledge to make decisions.

Visible Knowledge: Share knowledge with visual models.

LAMDA: The cycle of knowledge creation – PDCA for Knowledge Workers.
But Not All Assumptions of Agile Apply!

Software and IT Products
- Fully Modular Architecture
- Independent Modules
- Self-Documenting Code
- Rapid Automated Testing
- Continuous Refactoring
- Continuous Integration
- Release at any time – including after delivery – without penalty

Tangible Products
- Integrated Architecture
- Dependency Networks
- Physical Components
- Experiments Take Time
- Embedded Decisions
- Hierarchical Integration
- Late changes lead to increased production costs, and perhaps warranty costs and recalls
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- Effective Platform and Product Family Strategy and Development Practices
Good Design Practices
Pull the Rest

Chief Engineer: Develop lean leadership in the product teams.
Visible Rhythmic Processes: Create pull and flow in PD processes.
Set-Based Design: Investigate sets of alternatives early in design.
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Visible Knowledge: Share knowledge with visual models.
LAMDA: The cycle of knowledge creation – PDCA for Knowledge Workers.
My Suggestions

• If Lean is important to your stakeholders and/or your organization – use RLC to drive LPD

• If your R & D teams are allergic to Lean – use RLC to drive LPD without using language that creates unnecessary resistance
To Learn More

Purchase my book, sign up for an online or in-person workshop:
http://rapidlearningcycles.com

Join the Rapid Learning Cycles Framework’s Resource Center:
http://community.rapidlearningcycles.com

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*The Mastery of Innovation: A Field Guide to Lean Product Development*
Questions?

We have answers.