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WHITE PAPER

2026 Innovation Guide

PMMI Business Intelligence

pmmi.org

PMMI The Association for Packaging and Processing Technologies
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WHO WE ARE AND WHAT WE DO

PMMI is a global resource for the packaging and processing industry, unifying the industry across the manufacturing community. PMMI members promote business growth in a variety of industries by developing innovative manufacturing solutions to meet evolving consumer demands, today and in the future. PMMI membership represents more than 1,000 manufacturers and suppliers of equipment, components, and materials as well as providers of related equipment and services to the packaging and processing industry.

PMMI Business Drivers support the industry by delivering a variety of valuable resources, such as in-depth market research, practical best-practice tools and reports, specialized technical training, networking events, and other essential services.

PMMI connects consumer goods companies together with our members' manufacturing solutions through the premier PACK EXPO portfolio of trade shows, including PACK EXPO International, PACK EXPO Las Vegas, PACK EXPO East, PACK EXPO Southeast, EXPO PACK México, and EXPO PACK Guadalajara.

ABOUT THIS INNOVATION GUIDE

This guide was researched, developed, and produced by LabHat Consulting LLC in cooperation with and support from PMMI. LabHat is a boutique growth and innovation strategy firm built on more than 25 years of leadership experience at globally recognized firms including Monitor Group, Doblin, and Deloitte. The firm specializes in helping organizations navigate complex growth and innovation challenges by combining rigorous analytical strategy and Human-Centered Design principles.

To develop this guide, Lab Hat used a multi-phase research approach grounded in real industry engagement and voice-of-customer insights. The research included observation of OEM and customer interactions at PACK EXPO, a survey of PMMI member companies, and in-depth interviews with engineering and R&D leaders at major CPG companies across food, beverage, and personal care markets. These findings were synthesized into a practical, actionable playbook designed to help OEMs better understand innovation barriers and strengthen alignment with end-user needs.

For deeper analysis of PMMI member survey results, see the accompanying **Innovation White Paper**.

Built on Real Research. Designed for Real OEMs.

Innovation Guide Development Process: ***~3 months***

Phase 1
Immersive Discovery

We visited PACK EXPO and observed member-customer interactions firsthand. We spent time with OEM leaders to understand where the "Innovation Clock" actually stops on the floor

Phase 2
The Member Voice

We executed a comprehensive survey with over 60 PMMI member companies to uncover the specific organizational "frictions" (e.g., day-to-day firefighting) that impede innovation today

Phase 3
The End User Voice

We conducted deep-dive interviews with VPs of Engineering and R&D at major CPGs (Food/Bev/Personal Care) to understand the role of packaging in their organization, and what they actually want from an OEM partner

Phase 4
The Expert Synthesis

Synthesized these findings into a practical, "non-academic" playbook

Where **OEMs** Stand Today: High Ambition, Real Constraints

How important is innovation to your company?

86% Say it is a high or essential priority

What is the **#1 barrier** to innovation?

75% Say it is day-to-day operational demands

Where are members **innovating today?**

63% Are focused exclusively on product performance

Where are members on **AI?** (How many are using or testing AI today)

59% Are actively using or testing AI today

High priority innovators that have **an NPD process** to match

41% Say they don't have one

The #1 thing members say they **need most**

51% Say customer discovery

Where we want to be innovating **in 5 years**

49% Want to build new business models and channels

Weakest self-reported innovation **capability**

68% Cannot move reliably from idea to working prototype

Detailed Member and Customer Discovery Findings in the Companion Innovation White Paper

Source: PMMI Member Survey (n=63)

The Gap is Real… and it Goes Both Ways

	OEMs	Customers	
1 Innovation is a priority. Finding time for it is harder.	75% cite day-to-day demands as the #1 barrier to innovation. >40% have no formal NPD process.	Shrinking engineering benches have eliminated capacity to partner with OEMs.	*"[I need] the ability to research, engineer, and produce outside of normal day-to-day operations."* — **OEM**
2 We think we know the customer. But sometimes we're mostly checking boxes.	Majority rank customer insights highly, but also cite customer uncertainty about what customers want as the #2 barrier to innovation.	Real innovation comes from the factories or retailers, even though marketing usually takes the spotlight.	*"We think we know what they want… but we're mostly just checking boxes on an RFP."* — **OEM**
3 The door to early collaboration is open… we just have to walk through it.	With procurement walls and a shrinking engineering bench, it feels like the customer door is always closed.	Customers want a different model, where OEMs aren't just brought in at RFQ time.	*"The path from vendor to partner starts with understanding the business challenge, not just the spec."* — **CUSTOMER**
4 We're building great machines. But the definition of "great" is changing.	2 in 3 OEMs innovate only in product, but nearly 1/2 want to innovate on profit model & channel.	Customers aren't just focused on new features – they are looking at operational impact (flexibility, usability, and outcomes).	*"Innovation is no longer just new machines. It's… making machines simple enough for basic operators."* — **OEM**
5 The best innovation doesn't feel like innovation. It just works.	Leaders are shifting their value propositions toward recurring value drivers, like guaranteed uptime and new service models.	The innovations most celebrated run through existing equipment, with zero operational changes.	*"What looks great on the shelf isn't practical if you can't run it at full speed."* — **CUSTOMER**

Source: PMMI Member Survey (n=63); PMMI Customer Interviews (n=6); PMMI Member Focus Group / Interviews (n=16)

There is a Better Way to Innovate

The Problem

Most PMMI members rate innovation as a high or essential priority, and say they can't get to it.

Day-to-day operational demands consume the time and resources that innovation requires. This isn't a motivation problem, it's a structural one. When 75% of members cite daily operations as the #1 barrier, the implication is clear: innovation doesn't fail because people don't care, it fails because it was never protected.

For those who do carve out the time, a second challenge emerges: most innovation stays in a single lane. Most members focus nearly exclusively on product, while the market is increasingly rewarding new service models, profit models, and deeper customer engagement.

The Objective

To provide PMMI members with a standardized, repeatable framework that protects and guides innovation – improving

- *velocity* (how fast you move) and
- *value* (how much it matters to the customer)

Please refer to page 38 on how the authors of this guide can further help your teams make this process a reality in your organization

What This Guide Provides

- ✓ **The Framework:** A 5-step process (DRIVE) to ensure no stage of the innovation journey is skipped
- ✓ **The Tactics:** 15+ actionable tools and "Best Practices" derived from high-maturity peers
- ✓ **The Guardrails:** Clear "Tips" and "Watch-outs" to avoid the common pitfalls that kill 70% of innovation projects
- ✓ **The Evidence:** Quantitative and qualitative data from the 2026 PMMI Member Innovation Survey

Start Where it Hurts Most

1 The CEO who wants to unleash innovation, but isn't sure why it keeps stalling

Your team is talented. The intent is there. But somehow innovation never quite gets traction.

Use this guide as a diagnostic: map where innovation is breaking down, identify the capability gaps holding you back, and build the leadership conditions that let great work happen.

START with the DRIVE overview (page 10) and the capability scorecard (page 11)

2 The team member who feels stuck, without permission to move

You see the opportunity. You know what needs to change. But you don't have the dedicated time, the team, or the mandate.

Use this guide to build the case for your innovation mandate: own the discipline, identify where to start, and show leadership that there is a process worth protecting.

START with Step 1 of the DRIVE framework: Define (page 15)

3 The customer-facing leader who keeps showing up at the wrong moment

You're in front of customers, but you're arriving too late – at RFQ time, not problem-definition time.

Use this guide (especially the AI tools in Step 2) to prepare better conversations, develop a point of view before the brief exists, and nurture the shift from vendor to partner.

START with Step 2 of the DRIVE framework: Read the Customer (page 17)

Wherever you are starting from, this guide gives you a framework, a set of tools, and a community of peers who are working through the same challenges.

Introducing DRiVE

A framework to improve innovation effectiveness

DRIVE: A framework for *Innovation* *Effectiveness*

1. **D**efine the Opportunity

Focus on the friction, not the function

Establish a precise, shared definition of the problem worth solving—including its business context, technical boundaries, and the honest accounting of what you know vs. what you don't know about it

Key Milestone

A Clearly Articulated Problem Statement

2. **R**ead the Customer

Don't ask what they want. Understand what they need

Immerse yourself in the customer's world, getting close enough to understand the true "jobs to be done", the friction points they may have stopped complaining about, and the outcomes they can't yet articulate

Key Milestone

A Validated Set of Customer Needs

3. **I**deate the Solution

Expand the solution space before you narrow it

Generate expansive ideas with intention. *Look beyond the machine, i.e.,* leverage the Ten Types of Innovation including new profit models, strategic partnerships, service offerings, and new customer engagements

Key Milestone

A Portfolio of Well-Defined Innovation Concepts

4. **V**alidate the Concept

Build to learn, not to launch

Return to the customer with a tangible "proof of concept" (a low-fidelity prototype, rendering, or service model sketch). Gather data from their authentic reaction to learn, refine, or pivot before committing full development resources

Key Milestone

A Customer-Backed Validation Verdict

5. **E**xecute, Refine and Scale

Launch small to scale big

Turn the validated concept into a real, high-quality solution. Execute a controlled pilot program in a live operational setting to gather real-world data, refine the design, and prove the business case before a full commercial rollout

Key Milestone

A Pilot Readout and Roll-out Plan

DRIVE: What are the challenges? *How do you score today?*

1. Define the Opportunity

Reactive & Unprotected: Daily operational "fires" and urgent customer requests take priority over structured problem framing

"We don't really 'start' projects; we react to them. Usually, whoever screams the loudest for a fix is what defines our innovation agenda for the week"

2. Read the Customer

The Discovery Gap: High confidence in customer knowledge is often based on sales feedback rather than direct, structured discovery of unmet needs

"We think we know what they want because we talk to them every day, but we're mostly just checking boxes on an RFP instead of asking what their real headache is"

3. Ideate the Solution

Single-Lane Ideation: Teams stay in the "safe" zone of product features, struggling to ideate around new business models or services or customer engagements

"Our brainstorming always ends up back at 'how to make the machine faster.' We want to sell outcomes and services, but our ideas usually just stop at the hardware"

4. Validate the Concept

Technical vs. Commercial: Testing is treated as a final technical check-out rather than an early way to see if the customer will actually buy the solution

"By the time we show a customer a prototype, we've already spent too much to change it. We're testing to see if it works, not if they'll actually pay for it"

5. Execute, Refine and Scale

Strong Delivery, Weak Learning: The industry excels at shipping machines but rarely circles back to document "why" a project failed or succeeded

"We are great at getting the machine out the door. But once it's shipped, we're onto the next 'sold order' and all the lessons from the last build just disappear"

Illustrative Innovation Maturity Scoring 1: Novice — 5: Expert

Process *Rigor*	***Talent*** *Capability*	***Process*** *Rigor*	***Talent*** *Capability*	***Process*** *Rigor*	***Talent*** *Capability*	***Process*** *Rigor*	***Talent*** *Capability*	***Process*** *Rigor*	***Talent*** *Capability*
2.0 (Reactive)	**2.2** (Emerging)	**2.2** (Variable)	**2.6** (Competent)	**3.1** (Standardized)	**3.3** (Professional)	**1.7** (Neglected)	**1.9** (Novice)	**2.0** (Fragmented)	**2.3** (Overextended)

Leadership's Shadow Score: **2.1** (Incomplete) **2.3** (Narrow) *"Engineers, not Business Designers"*

DRIVE: 15 Best Practices for PMMI Members

1. Define the Opportunity

Standardized Innovation Brief: Use a one-page "ticket" to force problem framing before any engineering resources are allocated

Annual Innovation Intent: Align leadership on a 12-18 month "problem shortlist" to protect space from daily operational fires

"Innovation Time" Budget: Transition innovation from a discretionary activity to a protected, ring-fenced budget line

2. Read the Customer

JTBD Interview Guide: Deploy a structured two-page guide to move conversations from "what you want" to "what outcome you need"

Knowledge vs. Assumption Diagnostic: Use a two-column "audit" to separate proven customer facts from untested internal beliefs

Engineering-Led Discovery: Reframe discovery as a core R&D activity rather than just a Sales/Marketing responsibility

3. Ideate the Solution

"How Might We" Prompts: Use standard templates to bridge the gap from a customer insight to an open-ended solution prompt

Ten Types Ideation Canvas: Enable teams to brainstorm beyond product features into profit models and customer engagements

External Co-Creation: Normalize half-day ideation sessions with end users (and potentially material suppliers), to break "tunnel vision"

4. Validate the Concept

Lean Validation Protocol: Design the simplest, cheapest possible test for the 3 most critical assumptions before committing to a build

Assumption Mapping: Use a priority/uncertainty matrix to govern go/no-go decisions based on evidence, not intuition

Verification vs. Validation: Distinguish between "does it work?" (technical) and "will they buy it?" (commercial)

5. Execute, Refine and Scale

Structured Pilot Design: Define success metrics, learning owners, and "rollout rules" before the first machine ships

Post-Launch Learning Loop: Use a "Review & Restart" trigger to translate pilot learnings directly into the next DRIVE cycle

Productive Failure Forum: Reframe failed pilots as "documented evidence" to build a culture that tolerates and learns from risk

Illustrative Priority** focus for **"my" company

DRIVE: the AI Multiplier (How can AI enable teams to move faster?)

	1. **D**efine the Opportunity	2. **R**ead the Customer	3. **I**deate the Solution	4. **V**alidate the Concept	5. **E**xecute, Refine and Scale
Focus	*Internal framing and spotting macro-trends*	*Deep empathy and "Reading between the lines"*	*Expanding the solution beyond the machine*	*De-risking the business case before building*	*Accelerating Tiger Team's speed to market*
AI Activity	**Predictive Market Scanning.** Large Language Models (LLMs) can ingest 1,000+ industry reports, PMMI data, and competitor patents in seconds to identify "Emerging White Spaces"	**The "Synthetic Mirror" (Role-Play).** Before going to a major customer, "role play" with an AI persona trained on that customer's specific industry, pain points, and past objections to refine their questioning strategy.	**Cross-Industry "Ten Types" Mashups.** Use AI to brainstorm: "How would a subscription-based software company solve a packaging changeover problem?" AI is the "Outsider" not biased by your engineering history	**Simulated Market Testing.** Create "AI Personas" from real customer data to "stress-test" a new service concept or price point. Ask the AI: *"What are the top 3 reasons a Plant Manager would reject this subscription?"*	**Institutional Memory Architect.** Document every decision, failure, and pivot. AI generates a "Post-Mortem Playbook" that future teams can search (e.g., *"Why did we stop using that specific sensor in the Alpha pilot?"*)
AI Type	Generative AI (LLMs) & Predictive Analytics	Persona-Based Agentic AI.	Creative Generative AI	Agentic AI / Persona Simulation	Vector Database & RAG (Retrieval-Augmented Generation)
User	**Leadership** & Strategy, and **Engineering** (Patents Analysis)	**Sales** and **Field Service**	**Engineering** and **Product Management**	**Product Management** and **Leadership**	**Tiger Team**
Velicity Gain	Reduces the "Framing" activity from weeks of manual research to a 1-day executive workshop based on AI-synthesized insights	Removes the "Learning Curve" during live customer meetings, and empower teams to prepare a more productive dialogue	Instantly generates 50+ "Non-Product" ideas (Profit Model, Service, Channel) to break the "Cognitive Lock" of engineering	"Fails" a bad business model in 5 minutes of prompting rather than 5 weeks of failed customer meetings.	Prevents "Reinventing the Wheel" by instantly retrieving past project learnings, and re-contextualizing for the project at hand
	SIGNIFICANTLY EXPAND INSIGHTS GENERATION	**ELIMINATE UNPREPARED MEETINGS**	**INCREASE INNOVATION PORTFOLIO BREADTH**	**STRENGTHEN THE RISK-REWARD RATIO**	**CAPTURE THE DIVIDENDS OF LESSONS LEARNED**

Guide Steps Detail

Key activities, deliverables, tips and watch-outs

Note: Please refer to page 38 on how the authors of this guide can further help your teams make this process a reality in your organization

1 Define the Opportunity: Overview

What it is

Description

Establish a precise, shared definition of the problem worth solving—including its business context, technical boundaries, and the honest accounting of what you know vs. what you don't know about it.

Key Milestone

A Clearly Articulated Problem Statement

Challenge

Reactive & Unprotected: Daily operational "fires" and urgent customer requests take priority over structured problem framing.

> *"We don't really 'start' projects; we react to them. Usually, whoever screams the loudest for a fix is what defines our innovation agenda for the week."*

How did we score?

Innovation Effectiveness Scoring (1 = Novice ; 5 = Expert)

***Process** Rigor*

2.0
(Reactive)

Innovation is primarily prompted by an external RFP or a direct customer request. There is **no formal internal "sensing"** process to identify market shifts before they become a requirement.

***Talent** Capability*

2.2
(Emerging)

Teams have high technical knowledge but are **trained to be "order takers."** The skill set to proactively analyze macro-trends or identify "white space" is not yet a core competency.

Best Practices

Standardized Innovation Brief: Use a one-page "ticket" to force problem framing before allocating resources

Annual Innovation Intent: Align leadership on a 12-18 month "problem shortlist" to protect space from daily operational fires

"Innovation Time" Budget: Transition innovation from a discretionary activity to a protected, ring-fenced budget line-item

See How Your Peers Score Today: 63 PMMI members rated their own level of innovation maturity → see pg 12 of the **Innovation White Paper**

1 Define the Opportunity: Key Activities

Key Activities

How to get it done

Focus: Strategic intent, internal data mining, and "choosing the battlefield."

Service & Warranty Data Mining: Analyze the last 24 months of "unplanned downtime" events to identify systemic mechanical or software clusters that represent a new product or service opportunity

The "White Space" Audit: Map your current portfolio against the Ten Types of Innovation to identify where you are over-indexed (likely Product Performance) and where you are silent (Service, Profit Model, or Channel)

Internal Stakeholder "Brain-Dump": Interview your own Field Service Technicians and Sales Reps to capture the "unfiltered" customer complaints they hear but don't always document

Macro-Trend Overlay: Review PMMI and industry reports on Labor Shortages or Sustainability mandates to determine which external "headwinds" your next innovation must solve

Tips

Narrow the Lens. Don't try to "innovate everything." Use this phase to pick one specific theme (e.g., "SKU Changeover Speed") to focus your customer interviews later

Define "Success" Early. Determine what a "win" looks like for the company (e.g., 15% margin improvement vs. entering a new vertical) before talking to customers

Watch-outs

The Echo Chamber. Be careful not to let "Internal Framing" become "Internal Guessing." Treat every finding here as a hypothesis to be tested in the next phase

Solving Symptoms. Ensure you aren't just framing a "faster version of today's machine." Look for the business problem, not just the mechanical gap

1 Define the Opportunity: How AI can help

Focus *Internal framing and spotting macro-trends*

	Predictive Market Scanning	Competitive Benchmarking
AI Activity	Large Language Models (LLMs) can ingest 1,000+ industry reports, PMMI data, and competitor patents in seconds to identify "Emerging White Spaces“	Use AI to scrape every competitor's website, product manuals, and patent filings to create a "Feature Gap Analysis" in minutes.
AI Type	Generative AI (LLMs) & Predictive Analytics	Web-Crawler AI & Comparison Agents
Primary User	**Leadership & Strategy**	**Engineering** and **Product Management**
Velocity Gain	Reduces the "Framing" activity from weeks of manual research to a 1-day executive workshop based on AI-synthesized insights	Instant visual map of where you are "behind" vs. "ahead" in the market; gain foresight on tech development through provisional patent analysis
	100x INSIGHTS EXPANSION	**10x** COMPETITIVENESS AWARENESS

Case Studies

Material Supplier. Used AI to ingest global sustainability legislation, patent filings, and consumer sentiment data

→ *Identified a "white space" for fiber-based barriers 18 months before the market peaked*

Robotics Supplier. Deployed a web-scraping AI to analyze thousands of competitor firmware release notes and technical manuals

→ *Generated a real-time "Feature Gap Map", identifying exactly where competitor "Mean Time Between Failure" was improving, allowing engineering to prioritize reliability over speed in the next product cycle*

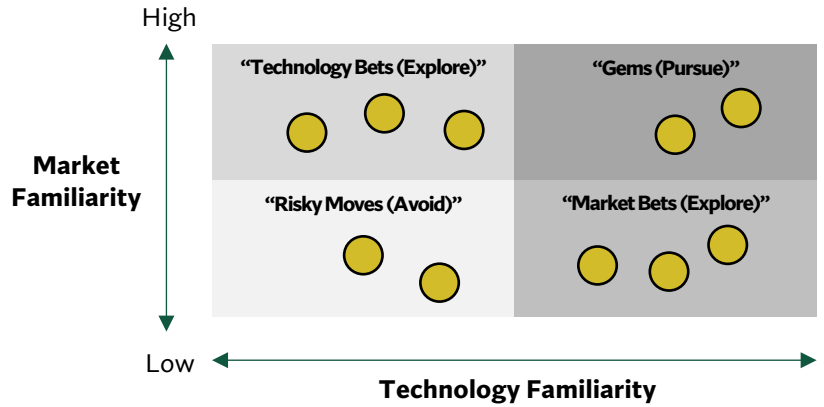
1 Define the Opportunity: Key Tools and Methods

Standard 1-Pager Innovation Brief

The idea in a nut-shell		Support-ing Data
The problem statement	Evidence customers will care	
Proposed next phase plan		

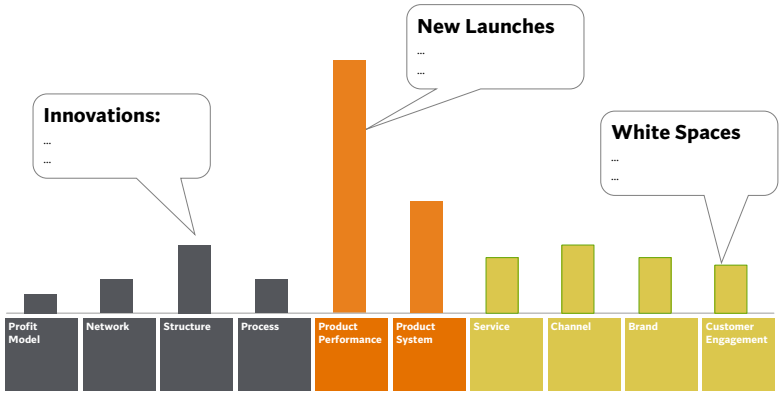
A simple form required for any project proceed to the next step in the DRIVE process

Innovation Intent Matrix



A 2x2 on which to plot the opportunities to prioritize where to focus

The Ten Types Diagnostic



A scoring sheet to see where your competitors are innovating and where you can differentiate

Historical Service-Log Heatmap

Maintenance_Log

Asset	Service_Date	Mileage_Hours	Service_Type	Notes	Alerts
Forklift #1	01/15/2024	1200	Oil Change	Replaced filter	Due Soon
Generator #2	01/01/2024	500	Annual Service	Changed spark plugs	Due Soon
Forklift #2	01/10/2024	800	Tire Replacement	Front right tire worn	Due Soon
Generator #1	01/08/2024	350	Fuel System		
Forklift #1	12/15/2023	1150	Battery		
Generator #2	12/10/2023	450	Oil Change		
Forklift #2	12/05/2023	750	Hydraulics		
Generator #1	01/02/2024	300	Belt Change		
Forklift #1	01/05/2024	1250	Safety Inspection		
Generator #2	01/12/2024	500	Filter Change		
Forklift #2	01/15/2024	850	Brake Service		
Generator #1	01/18/2024	400	Cooling System		
Forklift #1	01/20/2024	1300	Hydraulics		
Generator #2	11/15/2023	400	Electrical		
Forklift #2	11/20/2023	700	Engine Tune-up		

A visual representation of where your machines fail or require the most human intervention

2 Read the Customer: Overview

What it is

Description

Immerse yourself in the customer's world, getting close enough to understand the true "jobs to be done", the friction points they may have stopped complaining about, and the outcomes they can't yet articulate

Key Milestone

A Validated Set of Customer Needs

Challenge

The Discovery Gap: High confidence in customer knowledge is often based on sales feedback rather than direct, structured discovery of unmet needs

> *"We think we know what they want because we talk to them every day, but we're mostly just checking boxes on an RFP instead of asking what their real headache is"*

How did we score?

Innovation Effectiveness Scoring (1 = Novice ; 5 = Expert)

Process *Rigor*

2.2
(Variable)

Requirement gathering is standard, but **deep empathy is not**. Interactions are often limited to technical specs rather than observing the operator's environment and emotional "points of friction."

Talent *Capability*

2.6
(Competent)

Sales and service teams have the relationships, but they **lack the specific training in inquiry techniques (like the "5 Whys")** needed to "read between the lines" of a customer's stated needs.

Best Practices

JTBD Interview Guide: Deploy a structured two-page guide to move conversations from "what you want" to "what outcome you need"

Knowledge vs. Assumption Diagnostic: Use a two-column "audit" to separate proven customer facts from untested internal beliefs

Engineering-Led Discovery: Reframe discovery as a core R&D activity rather than just a Sales/Marketing responsibility

Hear it Directly From Customers: Six CPG executives told us exactly what they need from OEM Partners → see pg 17 of the **Innovation White Paper**

2 Read the Customer: Key Activities

Key Activities

How to get it done

Focus: Deep dive interviews, ethnographic observation, and "Reading between the lines."

Contextual Inquiry (Observation): Spend 4–8 hours on a customer's production floor. Watch the operator's body language; where do they look frustrated? Where do they "tweak" the settings manually?

Multi-Level Interviews: Interview the "Buyer" (Procurement), the "User" (Operator), and the "Beneficiary" (Plant Manager). Their definitions of value are often contradictory.

The "Day in the Life" Audit: Document everything that happens to the customer before they turn your machine on and after the product leaves the discharge conveyor.

Unmet Need Ranking: Present customers with a list of "Problems to Solve" (framed in Step D) and have them "buy" the ones they care about most with a virtual $100 budget.

Tips

Ask "How" not "What."
Instead of asking "What features do you want?", ask "How do you currently deal with this bottleneck?" Let them show you the pain.

Listen for "Workarounds."
When a customer says, "We just have a guy stand there and catch the boxes," you have found a high-value automation opportunity.

Watch-outs

The "Polite Customer."
Customers will often tell you an idea is "good" to be nice. Look for "Proof of Pain" (e.g., they've already tried to build a custom solution themselves).

Leading the Witness.
Avoid asking, "Would a faster motor help you?" Instead, ask, "What is the primary reason this line stops five times a day?"

2 Read the Customer: How AI can help

Focus *Deep empathy and "Reading between the lines“*

AI Activity	**The "Synthetic Mirror" (Role-Play).** Before going to a major customer, Sales/Product teams "role play" with an AI persona trained on that customer's specific industry, pain points, and past objections to refine their questioning strategy	**Sentiment & Friction Analysis.** Use AI to analyze hundreds of "unstructured" field service logs or recorded customer interviews to find recurring emotional "pain clusters" that humans might overlook as "routine“
AI Type	Creative Generative AI	Natural Language Processing (NLP) & Sentiment Analysis
Primary User	**Sales** and **Field Service**	**Sales** and **Field Service**
Velocity Gain	Removes the "Learning Curve" during live customer meetings, and empower teams to prepare a more productive dialogue **5x BREADTH MULTIPLIER**	Automates the synthesis of 100s of customer touchpoints into a clear "Top 5 Pain Points" list, (sticky-note exercise) **10x VELOCITY GAIN**

Case Studies

Automation Supplier. Sales teams used a persona-based LLM trained on "Skeptical Plant Manager" profiles to practice selling "Digital Twins" services

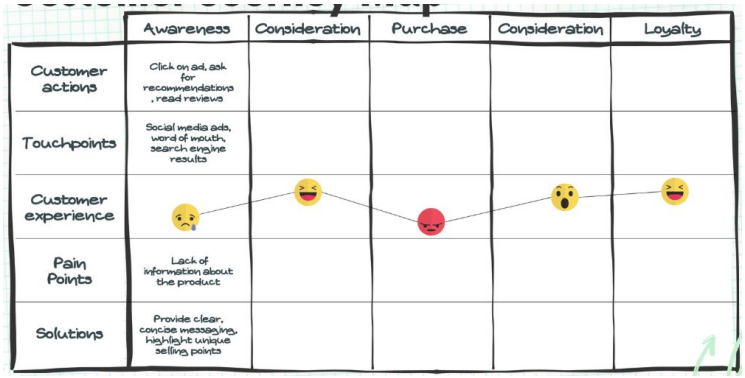
→ *By role-playing objections around cybersecurity and ROI, the team refined their inquiry technique, moving from 20% to 45% conversion on discovery meetings*

OEM. Applied NLP to 5 years of unstructured field service technician logs and "Voice of Customer" notes

→ *"Ease of Cleaning" was a bigger emotional friction point for operators than "Throughput Speed," leading to a complete redesign of the machine's sanitary surfaces*

2 Read the Customer: Key Tools and Methods

Customer Journey Map

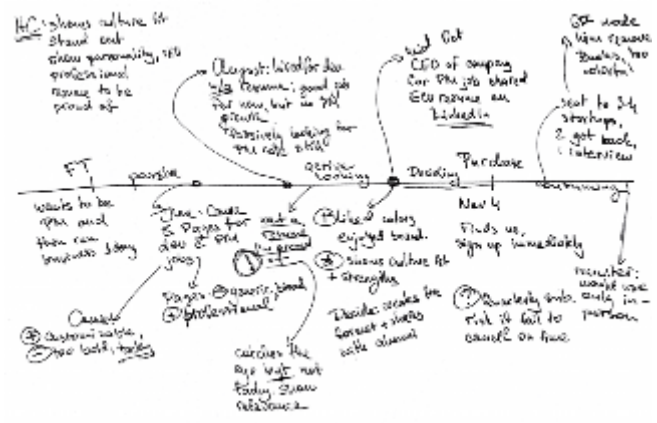


A visual path showing every touchpoint a customer has with your brand, highlighting "Points of Friction" and "Moments of Truth"

The "Card Sort" Exercise

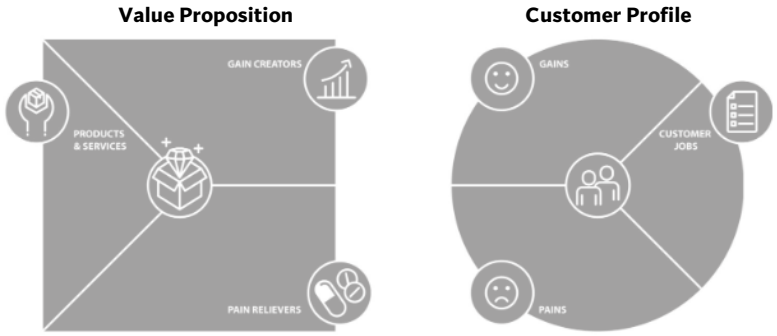
A physical or digital exercise where customers prioritize different value drivers (Speed, Ease of Use, Data Integration) in front of you.

Jobs-to-be-Done Interview Script



A specific questioning technique that uncovers the economical and emotional reasons behind a purchase

Value Proposition Canvas



A tool to map your proposed "Pain Relievers" and "Gain Creators" directly against the customer's specific "Jobs."

3 Ideate the Solution: Overview

What it is

Description

Generate expansive ideas with intention. Look beyond the machine, i.e., leverage the Ten Types of Innovation including new profit models, strategic partnerships, service offerings, and new customer engagements

Key Milestone

A Portfolio of Well-Defined Innovation Concepts

Challenge

Single-Lane Ideation: Teams stay in the "safe" zone of product features, struggling to ideate around new business models or services or customer engagements

> *"Our brainstorming always ends up back at 'how to make the machine faster.' We want to sell outcomes and services, but our ideas usually just stop at the hardware"*

How did we score?

Innovation Effectiveness Scoring (1 = Novice ; 5 = Expert)

***Process** Rigor*

3.1 (Standardized)

2.1 (Incomplete)

Members have clear CAD and engineering review cycles. The **rigor is high**, but it is currently **locked** into the **singe-lane "product"** improvements**.** There's **no process for business model ideas**

***Talent** Capability*

3.3 (Professional)

2.3 (Narrow)

World-class engineering talent exists across the membership. The **challenge is "Cognitive Lock"**—the tendency to solve every problem with a mechanical fix **rather than a new service or digital business model – *("Engineers, Not Business Designers")***

Best Practices

"How Might We" Prompts: Use templates to bridge the gap from customer insights to open-ended solution prompts

Ten Types Ideation Canvas: Enable teams to brainstorm beyond product features into profit models and customer engagements

External Co-Creation: Normalize half-day ideation sessions with end users (and potentially material suppliers), to break "tunnel vision"

See Innovation Beyond the Machine: Real PMMI member examples of innovation across all Ten Types → see pg 14 of the **Innovation White Paper**

3 Ideate the Solution: Key Activities

Key Activities

How to get it done

Focus: Expanding the "solvable surface" beyond the machine and selecting the best "bets"

Analogous Inspiration Session: Study how industries with similar constraints (e.g., high-speed bottling vs. high-speed ammunition sorting) solve the same problem to spark non-obvious ideas

The "Ten Types" Matrix: Force the team to generate at least two ideas for every category (Profit Model, Process, Service, etc.) so you don't default to "just a faster motor

"Co-Creation Workshop: Bring a trusted "Lead User" customer into a controlled session to build on your raw concepts in real-time

Rapid Concept Storyboarding: Create "low-fidelity" sketches of the top 3 ideas that show the customer's "Before and After" state

Tips

Go for Quantity. The best way to have a good idea is to have a lot of ideas. Don't judge feasibility until you have at least 20-30 raw concepts

Invite the "Outsiders." Include a field service tech or a finance person in your ideation; they see the "Profit" and "Pain" differently than engineering

Watch-outs

The "Pet Project." Be wary of senior leaders pushing their favorite technical solution regardless of whether it solved the "Read the Customer" pain points.

Premature Optimization. Don't let the engineering team start CAD drawings yet. Keep it at the "Concept" level to remain agile.

3 Ideate the Solution: How AI can help

Focus *Expanding the solution beyond the machine*

	Cross-Industry "Ten Types" Mashups	Constraints-Based "Red Teaming"
AI Activity	The “Lateral Thinker”. Use AI to brainstorm: *"How would a subscription-based software company solve a packaging changeover problem?"* AI is the "Outsider“ not biased by your engineering history	Critiquing a concept for mechanical, financial, or operational weaknesses before it moves to validation, anticipating risks ,customer pushbacks and objections
AI Type	Creative Generative AI	Logic Based LLM Agent
Primary User	**Engineering** and **Product Management**	**Leadership**
Velocity Gain	Instantly generates 50+ "Non-Product" ideas (Profit Model, Service, Channel) to break the "Cognitive Lock" of engineering **5x** BREADTH MULTIPLIER	Immediate "Stress-Test" of an idea's feasibility, articulating risks, prioritizing them and preparing counter points ahead of actual validation **20:1** REFINEMENT SPEED

Case Studies

Construction Tools Provider. Used AI to ask: "How would Netflix or Rolls-Royce manage a power tool fleet?”

→ *Broke their internal "hardware-only" mindset and led to “[company] ON!Track"—a fleet management service that is now a major recurring revenue driver*

Automation Provider. After ideating a new modular switchgear, they used AI to "attack" the idea from a supply chain perspective

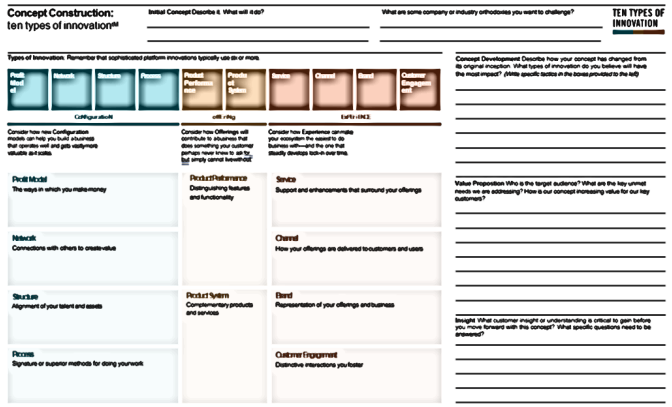
→ *AI identified that 3 critical components had a high risk of geopolitical disruption, forcing the team to re-ideate the design using more resilient, locally sourced materials before prototyping.*

3 Ideate the Solution: Key Tools and Methods

Ten Types of Innovation Analog Cards

A set of "How does [Company X] do it?" cards (e.g., "How would Amazon handle this spare part delivery?") to shift perspective.

Concept Poster

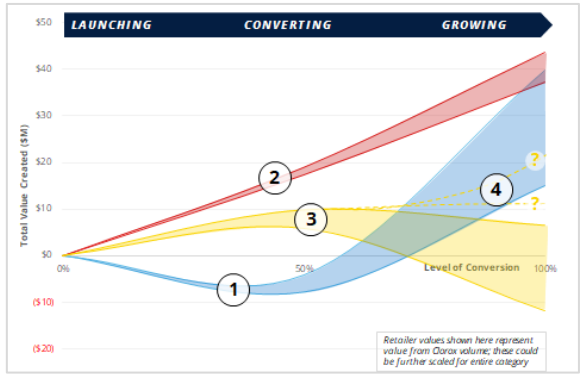


A standardized one-pager for each top idea: What is it? Who is it for? How does it make money?

Balance Breakthrough Assessment

A framework for assessing Desirability, Viability, and Feasibility for each ideas

High Level Business Model



A preliminary, yet best informed with insights gathered, perspective on how the concept might make money, under different scenarios of assumptions

4 Validate the Concept: Overview

What it is

Description

Return to the customer with a tangible "proof of concept" (a low-fidelity prototype, rendering, or service model sketch). Gather data from their authentic reaction to learn, refine, or pivot before committing full development resources

Key Milestone

A Customer-Backed Validation Verdict

Challenge

Technical vs. Commercial: Testing is treated as a final technical check-out rather than an early way to see if the customer will actually buy the solution

> *"By the time we show a customer a prototype, we've already spent too much to change it. We're testing to see if it works, not if they'll actually pay for it"*

How did we score?

Innovation Effectiveness Scoring (1 = Novice ; 5 = Expert)

Process *Rigor*

1.7
(Neglected)

This is the most significant "Missing Link" in the process. There is almost **no formal requirement to test** a business case or **customer willingness to pay** before committing to full-scale development.

Talent *Capability*

1.9
(Novice)

Teams often **confuse "Selling" with "Validating."** They spend time trying to convince the customer the idea is good rather than running experiments to see if it actually solves a pain point.

Best Practices

Lean Validation Protocol: Design the simplest, cheapest possible test for the 3 most critical assumptions before committing to a build

Assumption Mapping: Use a priority/uncertainty matrix to govern go/no-go decisions based on evidence, not intuition

Verification vs. Validation: Distinguish between "does it work?" (technical) and "will they buy it?" (commercial)

4 Validate the Concept: Key Activities

Key Activities

How to get it done

Focus: Testing the "riskiest" parts of the business case before cutting metal.

Assumption Mapping: Identify the one thing that must be true for this to work (e.g., "The customer will pay 20% more for a 5% speed increase") and test that first.

Paper/Digital Prototyping: Use wireframes or 3D renderings to test the user interface (HMI) with operators before writing a line of code.

The "Letter of Intent" (LOI) Test: Ask a customer to sign a non-binding LOI for the first unit. Their willingness to sign is the ultimate validation of value.

Concierge Testing: Manually perform a "service" innovation (e.g., remote monitoring) using a person with a cell phone before building the automated software platform.

Tips

Fail Fast & Cheap. If a concept is going to fail, you want it to fail on a $500 sketch, not a $500k prototype.

Seek "No." Don't ask "Do you like this?" Ask "What would prevent you from buying this tomorrow?"

Watch-outs

Confirmation Bias. Don't ignore the customer who says "I don't need this" just because you really want to build it.

Feature Creep. During validation, customers will ask for "one more thing." Stay focused on the core "Job to be Done."

4 Validate the Concept: How AI can help

Focus *De-risking the business case before building*

AI Activity	**Simulated Market Testing** The “Synthetic Customer”: Create "AI Personas" from real customer data to "stress-test" a new service concept or price point. Ask the AI: *"What are the top 3 reasons a Plant Manager would reject this subscription?“*	**Rapid Value-Prop Messaging A/B Testing** Use AI to generate 10 different "Value Proposition" pitches for the same idea (e.g., one focused on ROI, one on ESG, one on Labor) and test which resonates most with "Synthetic Stakeholders" to find the winning hook
AI Type	Agentic AI / Persona Simulation	Generative Design (CAD) & Co-Pilot (Coding)
Primary User	**Product Management** and **Leadership**	**Engineering** and **Operations**
Velocity Gain	“Fails" a bad business model in 5 minutes of prompting rather than 5 weeks of failed customer meetings **20:1** RISK-REWARD RATIO	Slashes the "Manual Toil" of design and documentation, allowing team to stay focused on strategic problem-solving **3x** ENGINEERING THROUGHPUT

Case Studies

BMW (Manufacturing Division). Created "Digital Personas" of factory floor workers and line leads to "test" the ergonomics and workflow of a new robotic assembly cell.

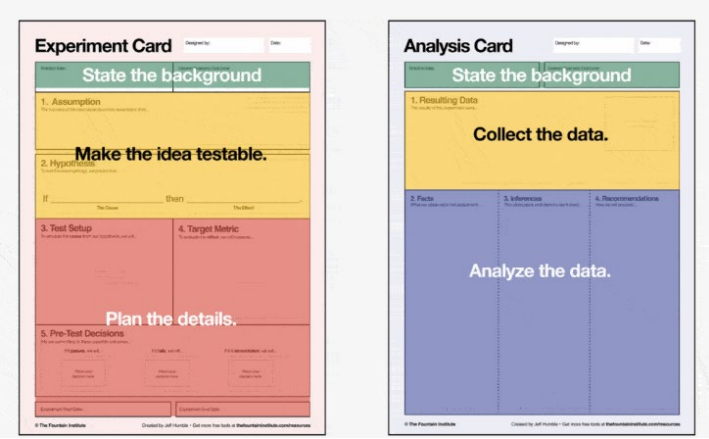
→ *“Failed" 12 different workstation layouts in a virtual environment for the cost of $0, ensuring the first physical prototype was already 90% optimized for the user”*

Salesforce (Industrial Cloud). Used AI to generate and test 50 variations of "Value Headlines" for a new predictive maintenance tool against AI-simulated personas of CFOs and CTOs.

→ *Discovered that "Risk Mitigation" resonated 3x more than "Efficiency Gain," allowing the sales team to pivot their pitch before the actual product launch*

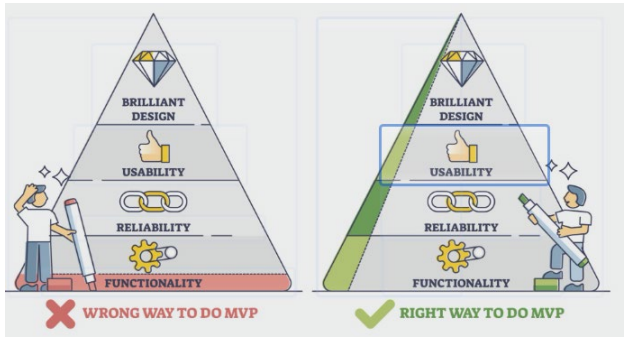
4 Validate the Concept: Key Tools and Methods

Experiment Card



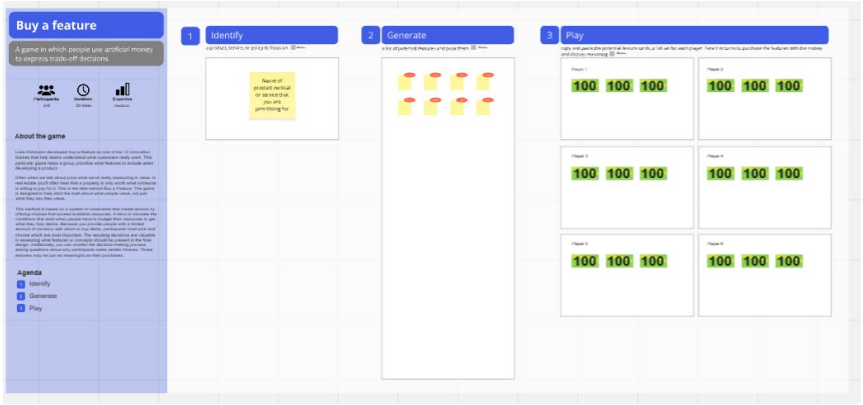
A structured "We believe... To test this we will... We are right if..." document to keep testing scientific.

Minimum Viable Product Definition



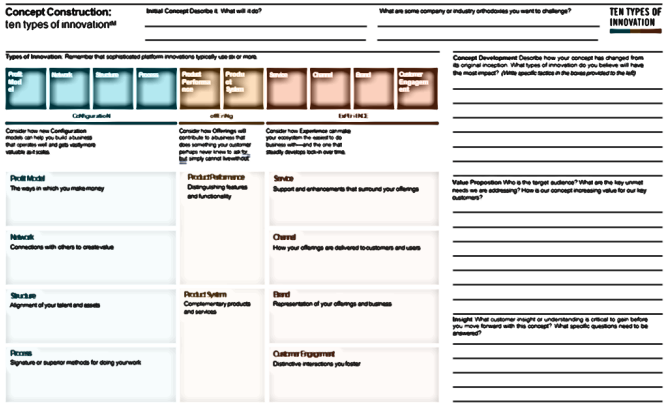
A list of the minimum features needed to solve the customer's pain and nothing more.

Buy-a-Feature



A game where you give customers limited "play money" and see which features they actually spend

Concept Refinement



A refinement of the concept based on feedback from key value proposition to critical features to revised business model

5 Execute, Refine and Scale: Overview

What it is

Description

Turn the validated concept into a real, high-quality solution. Execute a controlled pilot program in a live operational setting to gather real-world data, refine the design, and prove the business case before a full commercial rollout

Key Milestone

A Pilot Readout and Roll-out Plan

Challenge

Strong Delivery, Weak Learning: The industry excels at shipping machines but rarely circles back to document "why" a project failed or succeeded

> *"We are great at getting the machine out the door. But once it's shipped, we're onto the next 'sold order' and all the lessons from the last build just disappear"*

How did we score?

Innovation Effectiveness Scoring (1 = Novice ; 5 = Expert)

Process *Rigor*

2.0
(Fragmented)

Execution is frequently **"smothered" by the core** business. Projects lose momentum when a "big order" hits the floor, and there is rarely a formal "Learn-out" to capture IP from failures.

Talent *Capability*

2.3
(Overextended)

Success typically depends on "Heroics"—a few individuals pushing a project through the system despite the lack of a dedicated "Tiger Team" or a protected resource structure.

Best Practices

Structured Pilot Design: Define success metrics, learning owners, and launch rules before the first shipment

Post-Launch Learning Loop: Use a "Review & Restart" trigger to translate pilot learnings directly into the next DRIVE cycle

Productive Failure Forum: Reframe failed pilots as "documented evidence" to build a culture that tolerates and learns from risk

See What Gets in the Way: PMMI members share the biggest drivers that derail innovation → see pg 10 of the **Innovation White Paper**

5 Execute, Refine and Scale: Key Activities

Key Activities

How to get it done

Focus: The "Tiger Team" execution and capturing IP for future velocity.

Alpha/Beta Pilot Program: Run a 90-day "Live" test at a friendly site with a structured feedback loop every Friday.

IP "Catch" Session: Conduct a formal technical and commercial debrief to capture "failed paths" so the company doesn't repeat the same mistakes in the next project.

Commercialization Playbook: Create the sales tools and "value-based" pricing models that focus on the customer's ROI, not the machine's cost-plus price.

Tips

"Beta" like a VIP. The first 3 customers determine the reputation of the innovation. Over-service them during the pilot.

Celebrate "Smart Failure." If a project was killed in Step V, celebrate that as a win because you saved the company $X in wasted execution.

Watch-outs

The "Gravity" of the Core. The biggest risk is the "daily fire" pulling your Tiger Team back into routine operations. Management must protect their time.

Launch & Forget. Innovation doesn't end at the ship date. The learning must continue and it often requires 6 months of post-launch performance tracking.

5 Execute, Refine and Scale: How AI can help

Focus *Accelerating Tiger Team's speed to market*

AI Activity	**Institutional Memory Architect** Document every decision, failure, and pivot of the project. At the end, AI generates a "Post-Mortem Playbook" that future teams can search using natural language (e.g., *"Why did we stop using that specific sensor in the Alpha pilot?"*)	**Generative Design & Automated Coding** Use AI to Generate 100+ CAD iterations optimized for weight/cost or write the foundational PLC code for a new feature, freeing the team to focus on 20% high-value complexity
AI Type	Vector Database & RAG (Retrieval-Augmented Generation)	Generative Design (CAD) & Co-Pilot (Coding)
Primary User	The **Tiger Team**	**Engineering** and **Operations**
Velocity Gain	Prevents "Reinventing the Wheel" by instantly retrieving past project learnings, and re-contextualizing for the project at hand	Slashes the "Manual Toil" of design and documentation, allowing team to stay focused on strategic problem-solving
	100% CAPTURE OF FAILURE DIVIDENDS	**3x** ENGINEERING THROUGHPUT

Case Studies

SpaceX. Uses a centralized AI "Knowledge Graph" that captures every engineering failure, test fire anomaly, and design change.

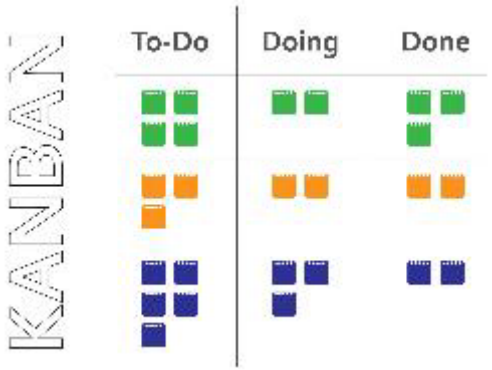
→ *New engineers can ask the system: "Why did we stop using the X-3 alloy in 2021?" and get a full technical context, preventing the "reinvention of the wheel" and accelerating the launch cycle*

Autodesk/General Motors. Used generative design AI to redesign a seat bracket, optimize for weight & strength

→ *Generated 150 valid designs in hours; a human engineer then selected the best one. The result was 40% lighter and 20% stronger, with the execution phase cut by 60%*

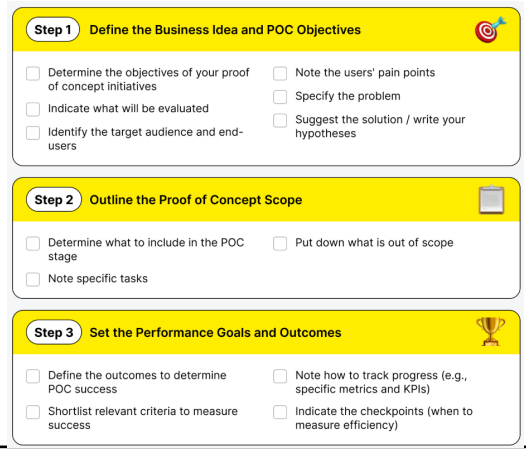
5 Execute, Refine and Scale: Key Tools and Methods

Agile Sprint Board (Kanban)



A visual way to track the weekly tasks and bottlenecks during the launch phase..

Alpha-Customer Rules of Engagement

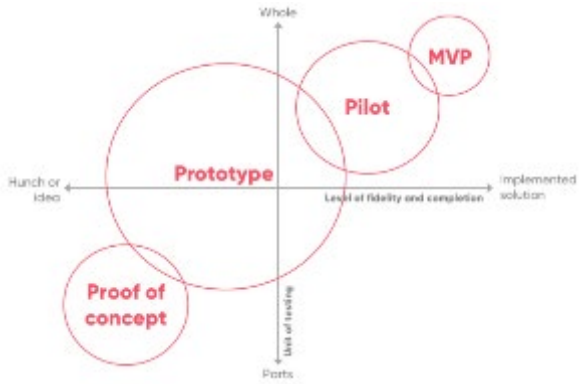


A clear perspective of the benefit exchange with the alpha customers supporting us through the POC and the relative responsibilities

Post-Mortem Canvas

A structured workshop tool to extract technical, commercial, and process learnings from the project..

Roll-out Plan



A roadmap to expand beyond the initial proof of concept pilot, within and beyond the alpha customers

Parting thoughts

Organizing to win, and final call

The "Tiger Team" Model

The Tiger Team Manifesto: A formal "contract" signed by leadership that guarantees the team's autonomy and resources.

The Concept

While models exists where innovation is democratized (i.e., the **"the 3M 15% model"**... every employee has permission to innovate for a day a week)...

.... a more suitable model for OEMs is the **dedication of small Tiger teams,** for a nearly full-time allocation to work on innovation projects over a pre-assigned time

Why This Works

It provides the "**Dedicated Time**" that **75% of PMMI members say they are missing.**

The Anatomy of a TIGER TEAM

Team size: **3-4 people**

Team composition: **multi-disciplinary**, **cross functional** (i.e. sales / service / engineering / R&D / finance)

Time allocation: nearly full time (suggest **80-100%**)

Project Duration: suggest **90-day** sprint

Process: 5-Steps **DRiVE**

The "Sanctuary" Rule: *They **report to the CEO/Owner**, not the Operations Manager. They are physically or digitally "ring-fenced" from daily fires.*

The "Tiger Fund": *Allocate **a fixed % of every "sold order"** profit into a dedicated fund that can be used by the Tiger Teams for their projects.*

Shall we really **innovate?** Risk of **doing** vs. Risk of **not doing**

Risks of Doing

Estimated risk assessment: **MED-LOW**

These are "costs of admission" for growth, measurable, capped, and yield a "learning dividend" even if the project pivots

Resource Allocation Friction: Temporary diversion of top-tier engineering and sales talent from immediate "firefighting" to long-term value creation

Sunk Cost Exposure: Discrete financial investment in R&D, prototyping, and market testing that may not yield an immediate commercial ROI

Operational Disruption: Risk of "scope creep" or timeline shifts in core production schedules as "Tiger Teams" pull from shared resources

Brand Reputation (Pilot Phase): Potential for early-stage friction with "Alpha" customers if prototypes require rapid iterations in a live environment

"False Start" Fatigue: The cultural risk of losing team momentum if an initial DRIVE project is "killed" during the Validation stage

FINAL CALL: You can't afford *not* to invest. **DRiVE** process, **Tiger Teams** ensure that when you do invest, it's not a gamble—it's a disciplined strategic move.

Risks of Not Doing

Estimated risk assessment: **VERY HIGH**

These risks are systemic, compounding, and often invisible until it is too late to recover. This is the "Slow Death" of an OEM

The "Commodity Trap": Total reliance on Product Performance leads to price-based competition and permanent margin erosion as competitors catch up

Strategic Blindness: By failing to "Read the Customer" upstream, you remain a reactive order-taker, ceding the high-value "consultant" role to material or software suppliers

Innovation Debt: Falling technically and operationally behind the market, requiring a massive, high-risk "catch-up" investment in the future that the balance sheet may not support

Talent Atrophy: Loss of high-potential employees who leave for more innovative environments, leaving the organization with a culture resistant to change

Market Share Erosion: Vulnerability to "disruptive outsiders" who leverage new Profit Models or Services to solve customer problems you haven't yet acknowledged

HELP IS ON THE WAY!

How we can help you

We don't just deliver a report. We build your capabilities.

Our Coaching Model: *We provide the toolkits, templates, and frameworks while your team participates with us in the work. We show you and coach you on how to use the AI tools. We provide the "Safety Net", outside perspective, and real-time feedback to ensure* ***Rigor,*** *that ultimate drives* ***Innovation Effectiveness.***

Project 0: YOUR INNOVATION MATURITY DIAGNOSTIC (30-day)

Before moving forward, we go deep. We re-issue a specialized version of the PMMI **survey to your leadership and cross-functional teams** to map **Process Rigor vs. Talent Capability specific to your culture**, across the DRiVE process.

→ The Output: A "Heat Map" of your organization's innovation gaps, and a tailored roadmap to move from Reactive to Proactive.

1. Define the Opportunity

Project 1:
STRATEGIC AGENDA SPRINT (30-day)

We conduct rapid secondary research and macro-trend analysis to **identify the "White Spaces" your team is missing.** We help you transition from "RFP-driven" to "Agenda-driven" innovation

2. Read the Customer

Project 2:
CUSTOMER DISCOVERY SPRINT (30-day)

We lead blinded ethnographic research with customers **and non-customers**. As a third party, we uncover the unfiltered pain points and perceptions your sales team will never hear, revealing the **"Real Problem" to be solved**

3. Ideate the Solution

Project 3:
TEN TYPES of INNOV. SPRINT (30-day)

We facilitate multi-disciplinary sessions that force the team out of their product comfort zone. We push into **Profit Models, Service Blueprints, and Customer Engagement** to build a 'multi-type" solution and its business case

4. Validate the Concept

Project 4:
CONCEPT TESTING SPRINT (30-day)

We act as a neutral "Red Team" to pre-stress your concepts before they reach the customer. We then facilitate unbiased "Customer Validation Sessions" (often without you in the room) to get the brutal truth

5. Execute, Refine and Scale

Project 5:
TIGER TEAM DESIGN SPRINT (30-day)

We design the "Governance Shield" for your innovation. We help you select the right **team composition and set up the decision-making framework** that prevents the "Core Business" from smothering your innovation

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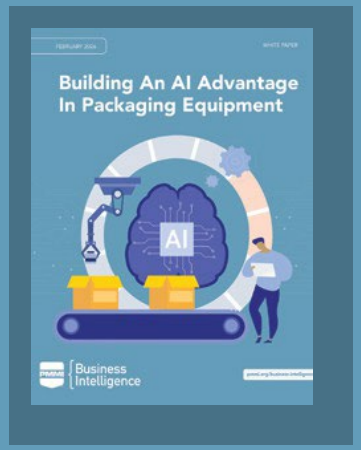

Building an AI Advantage in Packaging Equipment

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2025 Inside the Workforce Gap

For more information, contact:

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