A Lean Product and Process Development Adventure

Jim Morgan
An “insanely great” way to create new value

- First understand – then execute
- Create synchronized flow
- People centric
- Build in learning
- Design new value streams
The power of development

• Drives top line growth
• Determines much of your future performance potential
• Engages the entire enterprise
• You are essentially designing your future
A little LPPD History

• MIT Studies and “The Machine That Changed the World” Womack, Jones & Roos (1990)


• Industry application: The Ford story / LEI Learning Group / Rivian Automotive
Toyota Research

- Lead time was half of competitors
- Development costs about 2/3 of competitors with highest profit per vehicle
- Foundational for TPS
- Dominated JD Powers and Consumer Reports from 2000 through 2008 (and still does). Consistently Best Plants
- Highest global sales
- A disruptive model for continuous product development
- Profoundly different and more powerful
“I was right – Ford’s problems weren’t as bad as Boeing’s. They were much, much worse” – Alan Mulally

It’s nearly impossible to describe...

- ($17B) in losses
- 20yr market share decline
- Nearly industry worst customer satisfaction
- $1.90 stock price
- Sudden supplier bankruptcies
- “Cage fighting” culture
- Massive layoffs
Transforming an American Icon

It’s nearly impossible to describe…

- $9B profit
- 3yr market share increase
- Industry leading customer satisfaction
- $15 stock price
- Stronger global supply base
- “ONE FORD”
- Hiring thousands
Product Led Revolution

- $23B “All in for product”
- Global Platform Strategy
- New global development process
- Global development organization
- Completely new product portfolio
Lessons from Ford

- Product
- People
- Learning
- Leadership
Game changing products
How do you transform a brand new college graduate into a Technically Mature, Highly Skilled and Efficient Employee?
Create Towering Technical Competence

Honor technical excellence and value creation

Developing Engineers as a **Priority**

- TMM / ITDP
- Mentoring / targeted assignments
- Technical mastery
“Fully integrate and align around delivering great products”

Ford Boosts Supplier Standing in Placing Among Top 3

By Doron Levin

May 10 (Bloomberg) -- Ford Motor Co., following its first annual profit since 2005, became the only non-Japanese automaker in a survey of suppliers.

Study Shows Ford Climbs to #3 Overall in 'Working Relations' With Suppliers; Honda and Toyota Still #1 and #2, but Slipping; GM Gaining
The Matched Pair Process

- “Matched pairs” at Director, Chief & Manager levels in Engineering & Purchasing

- Speak with one voice of Ford Motor Company

- Align processes, tools & objectives around delivering great products

- Improved quality & speed decision making
Learning

- Seldom a “tool thing”
- Build learning into the way you do your work
- Doesn’t matter if you don’t use it
“Crucible of Innovation” - Design Reviews

- Great for developing products and people
- Surface and resolve technical/design issues
- Forum for cross-functional innovation – create rapid learning cycles
- Rigorous – “do the experiment”
- Capture the knowledge
People first leadership

• “People first is code for I love you as a person”

• Everyone’s included

• Eliminate fear and intimidation

• Hold ourselves accountable for both “what” and “how”
Skilled and talented leaders are important but not sufficient

LB and OS are interdependent – neither will be as successful without the other and each makes the other better

OS is “what” we do: Common tools, processes, cadenced events and leader standard work. LB is “how” we do it /our leadership skills and behaviors

Together they determine the power of your management system

“Participation is not optional”

Create a lean management framework

- Determine abnormal from normal
- Signal for help
- Provide timely help
Process: First, get the right product

- Work to deeply understand
- Generate sets of potential solutions
- Actively identify and close knowledge gaps
- Experiment to learn
Concept Paper: Vision for the product and the plan to deliver

• **Compile** what you have learned/check your thinking/create and articulate a compelling vision

• **Align** leaders around what the product will be/critical attributes/plan to deliver/R&Rs

• **Enroll** your team in the mission
Process milestones

- Provide guidance for teams to determine normal from abnormal conditions. Part of a management system

- Serve as functional/work stream integration points (interdependencies)

- Start with a clear purpose statement for each milestone

- Create Quality of Event Criteria - not just activity based
Compatibility Before Completion

**Completeness**
Engineering thoroughness of given design including design analysis for failure mode avoidance, testing and verification.

**CONCLUSION**
Early focus on completion creates more CAD work and late engineering changes. LPPD synchronizes the processes of compatibility and completeness minimizing rework workload and shortening lead time. Established DPA workstreams.

**Compatibility**
Should be a subset of completeness, virtual (CAD/CAD) checks done prior to CAD freeze for robust release. DPA work streams ensure critical interdependencies are checked.

**Synchronization**
Sequencing value-added work across Functions to eliminate rework loops (gives & gets).
Work effectively and concurrently

• Synchronize work across functions to reduce time to market

Understand how work is actually done across functions and key interdependencies
“You can’t manage a secret” – “Obeya”

- Transparency/collaboration/learning/decision making
- Daily / weekly team “stand ups”
- Gather and collaborate between meetings
- Roadmap to key characteristics
- Okay to be red -
  *Not okay to stay red*
Schilling Robotics: Gemini
TFMC: Sub Sea 2.0
• Came out of “stealth mode” at L.A. Auto Show
• Incredible “skate board” tech
• High profile “start up” with many suitors
• New partner/investors Amazon and Ford
• B to B and B to C businesses
A clean sheet...

- New product, tech, plant, team
- It’s that clean sheet we have always dreamt of....
- Also no standards, processes or operating infrastructure
- A hundred different ways to do everything
- And the clock is ticking on our future
What about yours?

Thank you
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