

First Impressions:

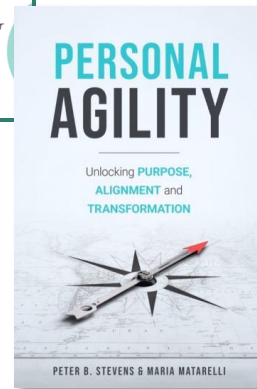
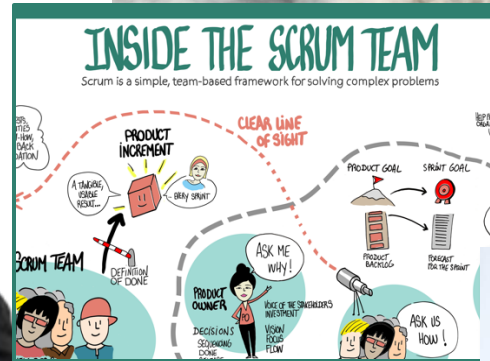
Combining Lean and Scrum for Hardware Development

Speed

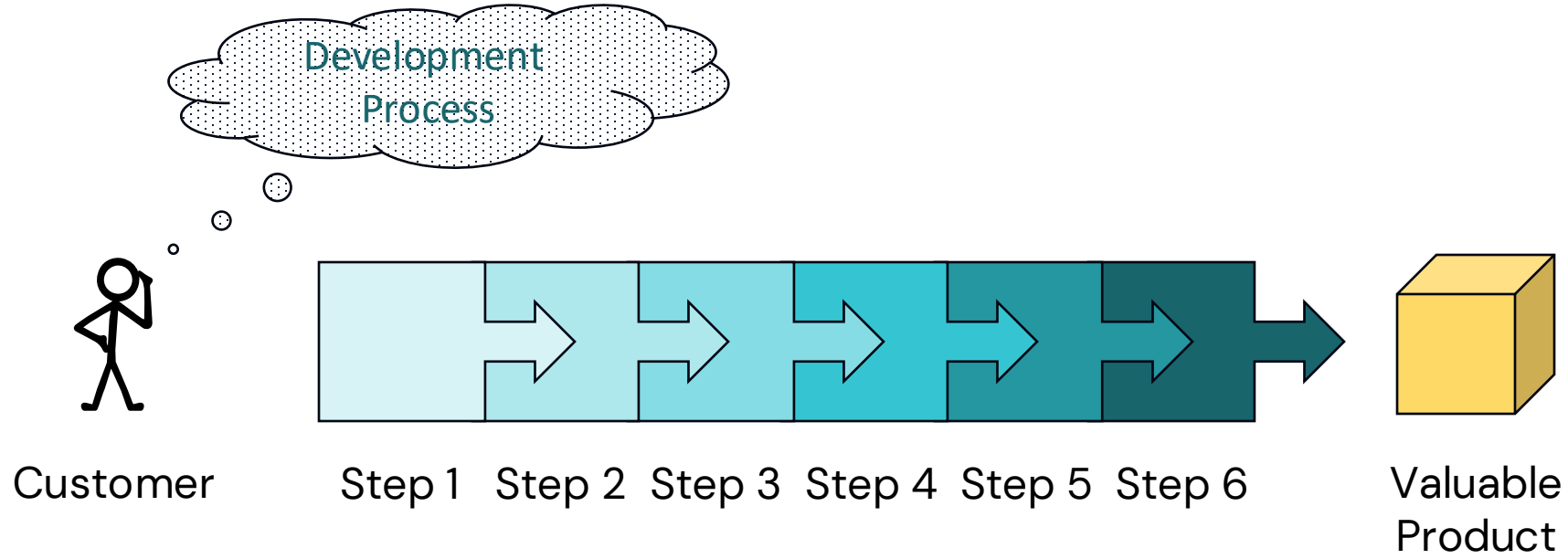
Why big companies are
getting serious about agility



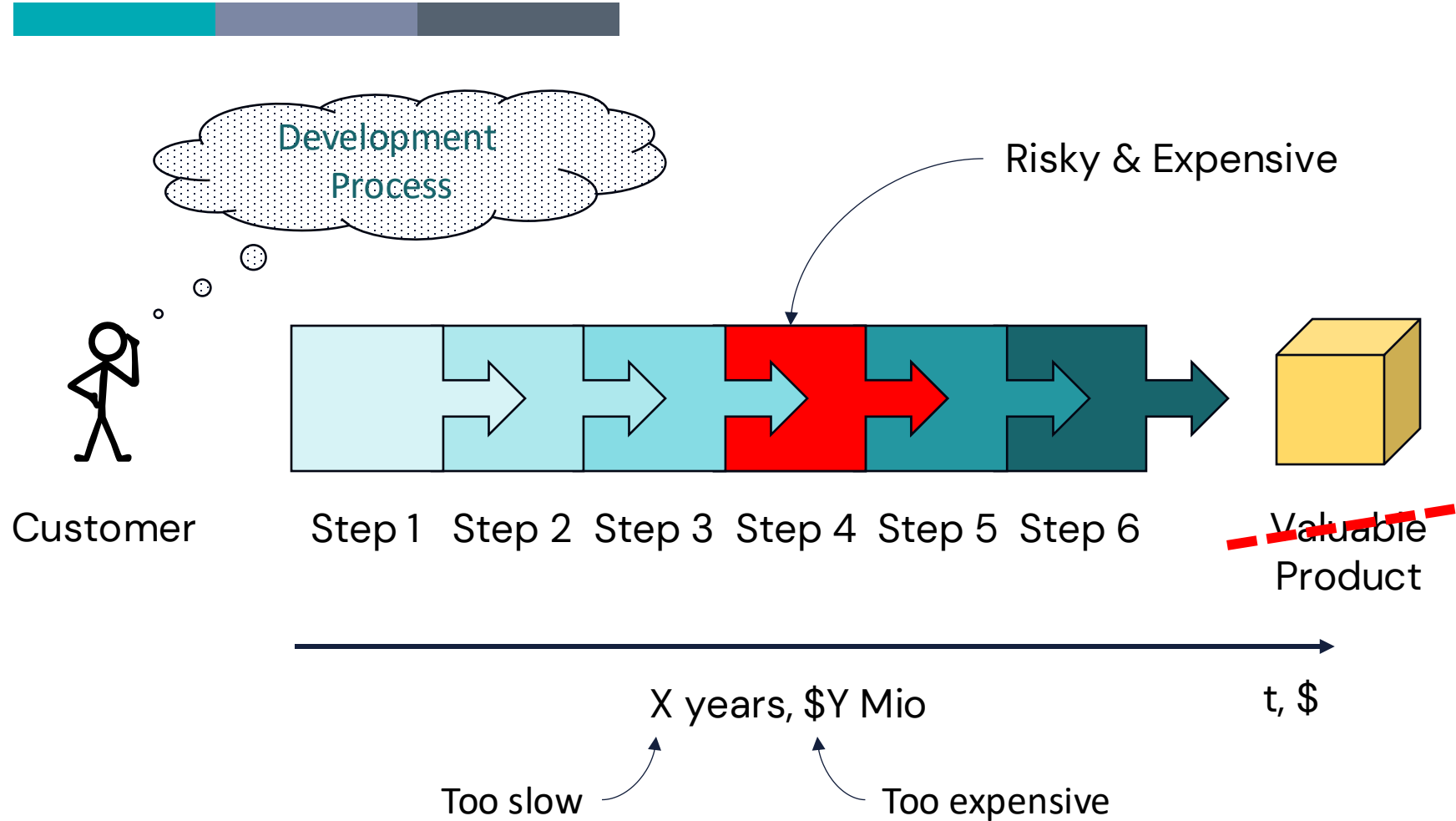
Peter B. Stevens – Let's talk acceleration!



How I got into Scrum, HW, Lean

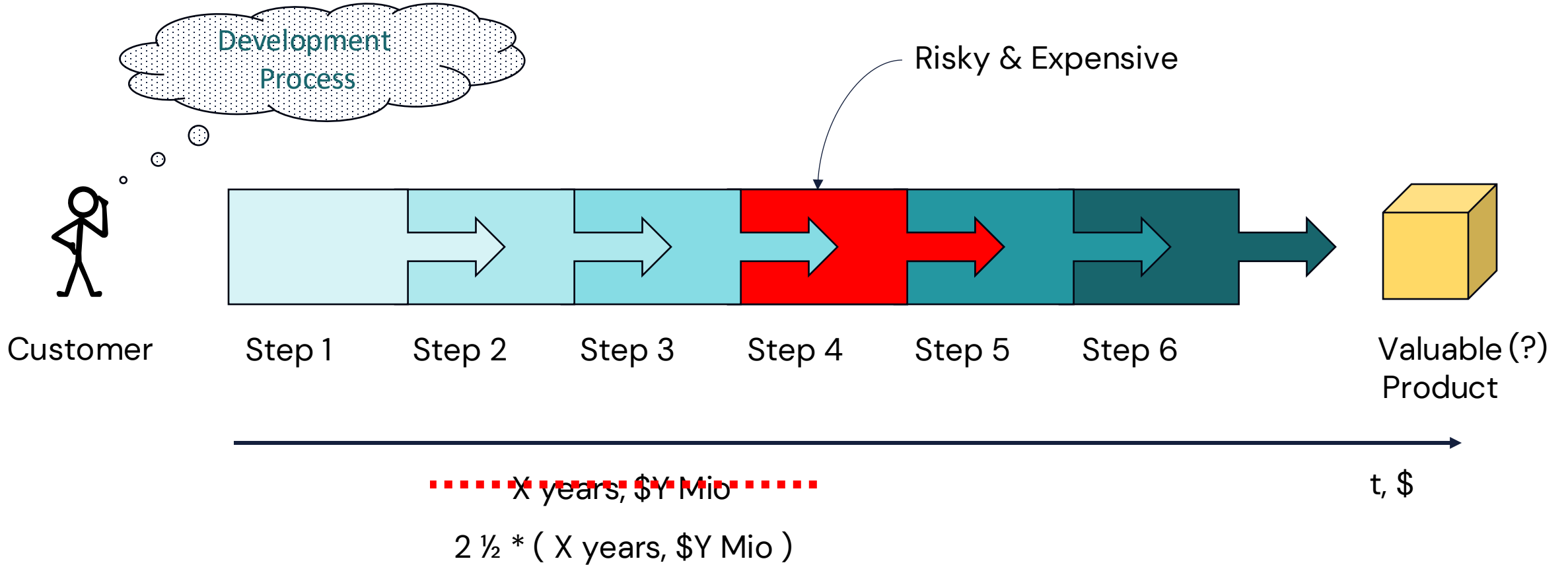


What's the problem?



What's the problem?

We want to be able to create
a new product every month!



Improvement requires (digital) tools and process



- Creating Digital Tools – a job for Scrum
- Improving Process – a job for Lean
- Human element – a job for Leadership

My impressions with Lean & Scrum in HW



Lean and Scrum: Two Great Tastes That Taste Great Together?

Learning and Unlearning: Letting Go of the Familiar

How I Learned to Love Chaos and Conflict

Pushing You and Your Organization to Be Better

When to use Scrum, when to use Lean Thinking

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**Lean and Scrum:
Two Great Tastes That Taste Great Together?**



What is Scrum?

Create something new to achieve valuable, tangible results. Sooner.



- **A simple, team-based framework for solving complex problems**
- Goal: Accelerate Development
- Designed to manage common challenges:
 - Alignment problem
 - Dependency problem
 - Delivery Risk
 - Market Risk
- **Modeled on patterns of successful product development**
 - **Inspect and adapt** at regular intervals
 - Produce **tangible results** at regular intervals
 - The team **solves the whole problem** from idea to done
 - One role focuses on **improving quality and effectiveness** (Scrum Master)
 - One role focuses on **ensuring the results are valuable** (Product Owner)
 - **Leadership**: Everybody is expected to know and do the right thing

What is Lean?

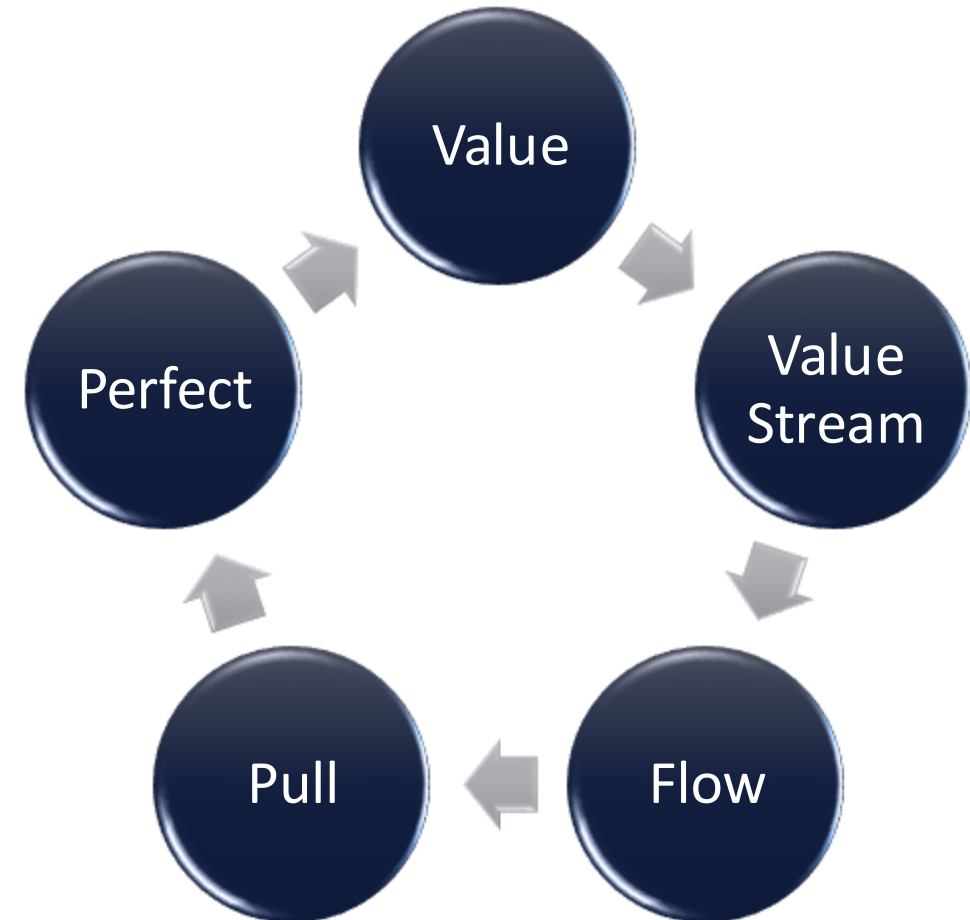
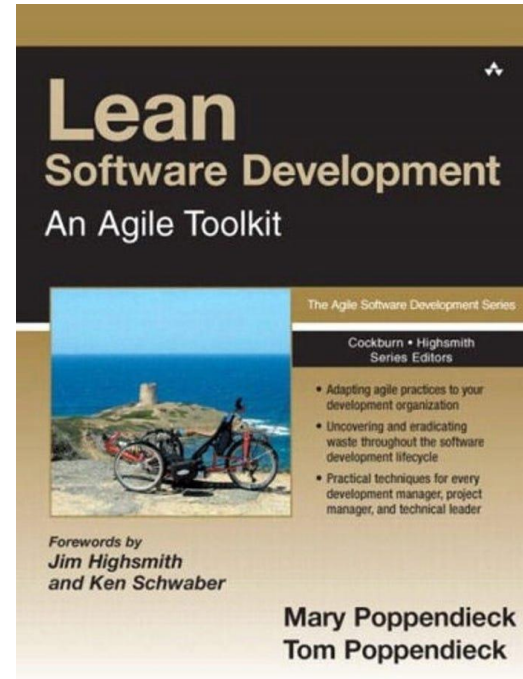
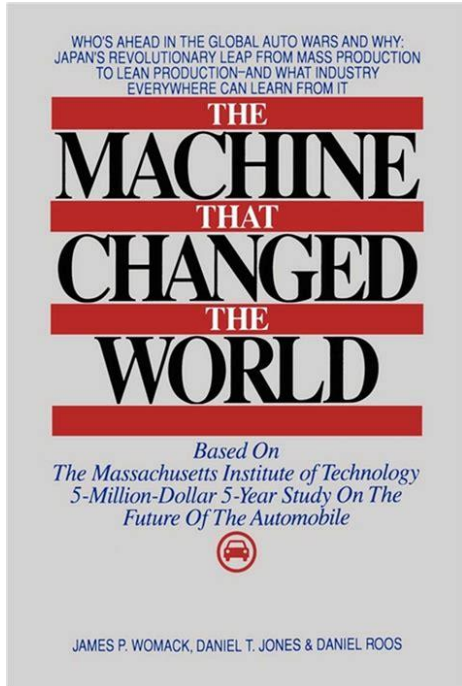
- Recreational drug combining prescription-grade cough syrup with a soft drink and hard candy



[https://en.wikipedia.org/wiki/Lean_\(drug\)](https://en.wikipedia.org/wiki/Lean_(drug))
Top level response from duckduckgo

What is Lean?

Manage complexity to reduce waste and variability in manufacturing



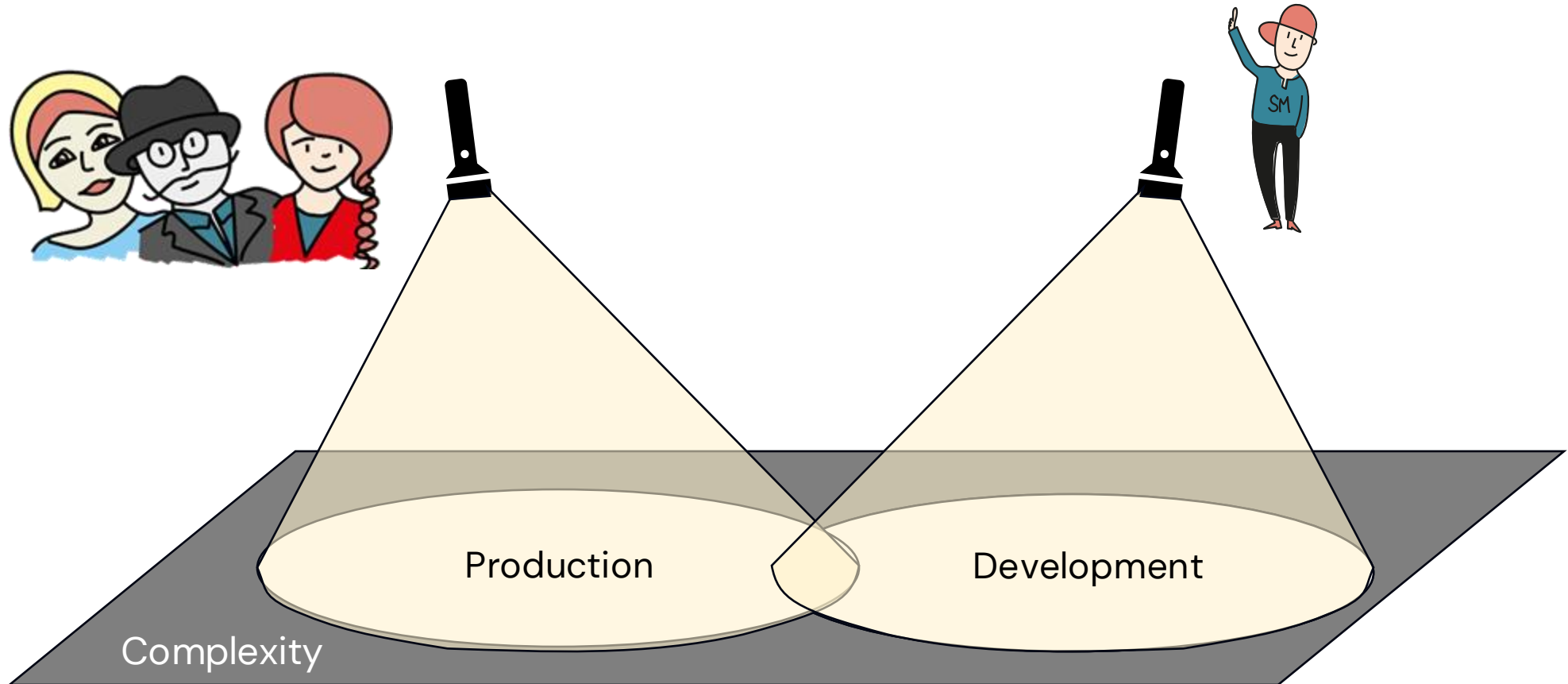
Complexity is when the unknowns dominate

The mind map is centered around three main concepts: **COMPLEX**, **COMPLICATED**, and **CHAOS**, each with a corresponding **DISORDER** label.

- COMPLEX** (Associated with **COMPLEX DISORDER**):
 - Characteristics: "THERE ARE NO GOOD ANSWERS", "THE PATH WILL BE CREATED WITH EVERY STEP", "THE ART OF LEARNING HOW TO PLAY".
 - Problem Solving: "WICKED PROBLEMS", "EMERGING PRACTICE", "THE TRUTH IS IN HERE".
 - Approach: "ACTION MODE", "RESPOND WITH A PLAN", "BETTER SAID THE PLAN!".
 - Visuals: A globe, a lightbulb, a question mark, and a path.
- COMPLICATED** (Associated with **COMPLICATED DISORDER**):
 - Characteristics: "GATHERING KNOWLEDGE", "ANALYZE THE PROBLEM & THE SOLUTIONS", "EXPERIMENT-EVALUATE-EXPERIMENT-EVALUATE-REPEAT-REPEAT-REPEAT".
 - Problem Solving: "BLUE PRINT", "THE TRUTH IS IN HERE", "THE EXPERT WILL SHOW YOU THE BEST WAY".
 - Approach: "ACTION MODE", "RESPOND WITH A PLAN", "BETTER SAID THE PLAN!".
 - Visuals: A lightbulb, a question mark, a path, and a box labeled "IKEA".
- CHAOS** (Associated with **CHAOS DISORDER**):
 - Characteristics: "ONCE OUT OF THE IMMEDIATE DANGER ZONE, ASSESS THE SITUATION AND DETERMINE NEXT STEPS", "REALLY...TRUST YOUR INSTINCT... GET OUT OF THE IMMEDIATE DANGER ZONE", "WHEN HELL BREAKS LOOSE", "DON'T FREEZE", "GET OUT OR GET HURT OR WORSE".
 - Problem Solving: "NOVEL PRACTICE", "KNOWLEDGE GATHERED THROUGHOUT LIFETIME IS ONLY PARTIAL USEFUL".
 - Approach: "ACTION MODE", "RESPOND WITH A WELL-KNOWN SOLUTION".
 - Visuals: A lightbulb, a question mark, a path, and a box labeled "IKEA".

The mind map also includes a **GOOD** section on the right, which is a simple drawing of a person with a question mark above their head, and a **THINK AGAIN** section at the bottom right, which is a drawing of a person with a lightbulb above their head.

But I thought <the other side> was merely complicated!



Where is the complexity?



Production

- The sheer number of moving pieces
 - Responsiveness
 - Efficiency is important
- Real risks if things go badly
- High capital and material costs
- Ordering makes a difference
- Disturbances propagate

Development

- You are solving a problem for the first time
 - Focus
 - Getting the right answer
 - Have you even asked the right question?
- Time needed to product solutions
 - Stakeholders can change their minds faster the developers can deliver
- Lots of stakeholders are involved

My impressions with Lean & Scrum in HW



Lean and Scrum: Two Great Tastes That Taste Great Together?

Learning and Unlearning: Letting Go of the Familiar

Unlearning – To get better, we have to change



	Helpful	Unhelpful
Know	Keep	Let go
Don't Know	Learn more	Resist

Examples



To learn

- How to build frequently
- How to deliver incrementally
- How to use new tools
- How to lead without defining how
- How to work within a cross-cultural team (languages, safety)
- Learning over planning
- How to learn faster

To unlearn

- Fear of responsibility
- Purchasing process
- Blue collar vs white collar distinctions
- Linear thinking
- Perfectionism

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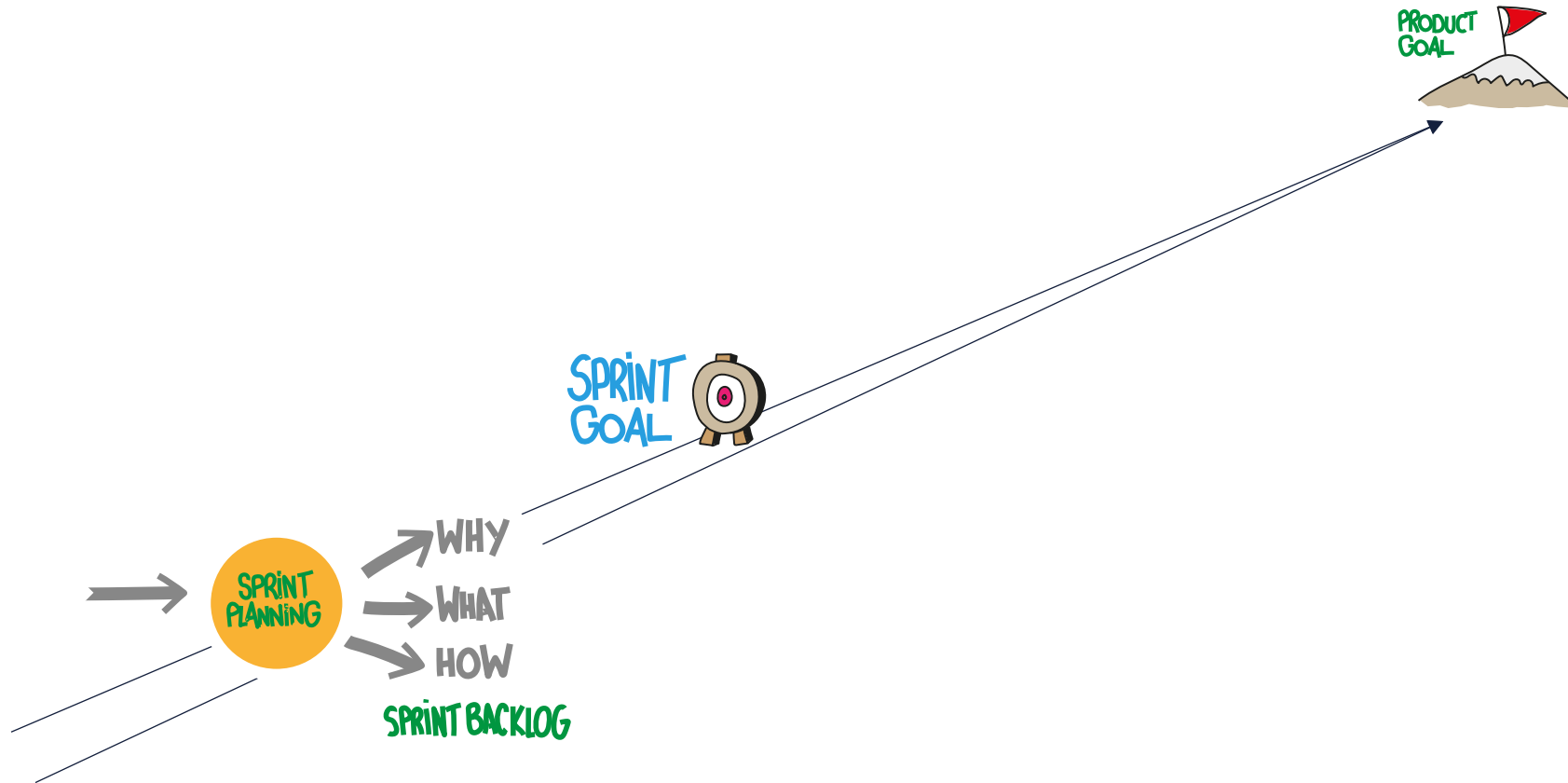


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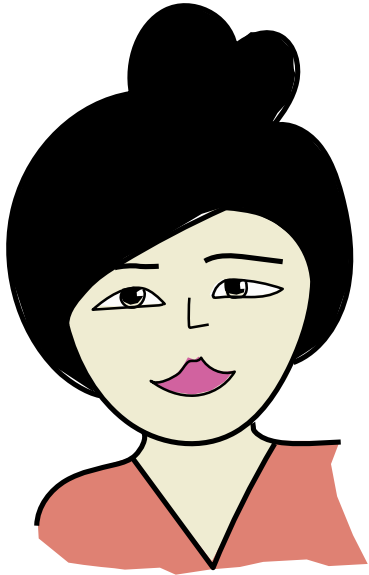
Learning and Unlearning: Letting Go of the Familiar

How I Learned to Love Chaos and Conflict

Planning in Scrum is Lightweight and JIT



Scrum Planning is...

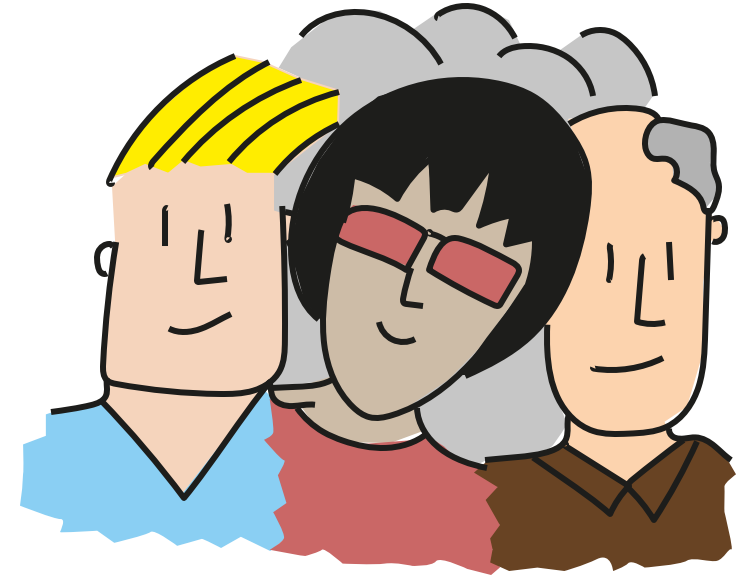


Product Owner



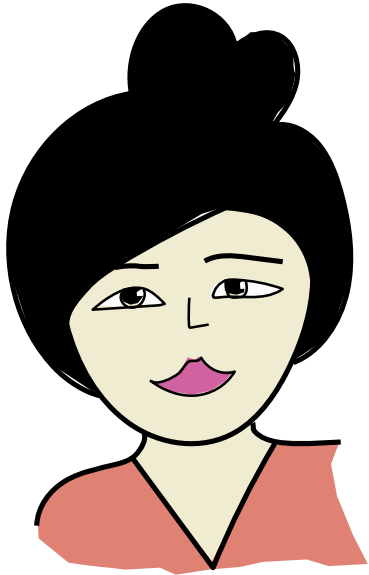
Wish

Reality



Developers

Scrum is...



Product Owner



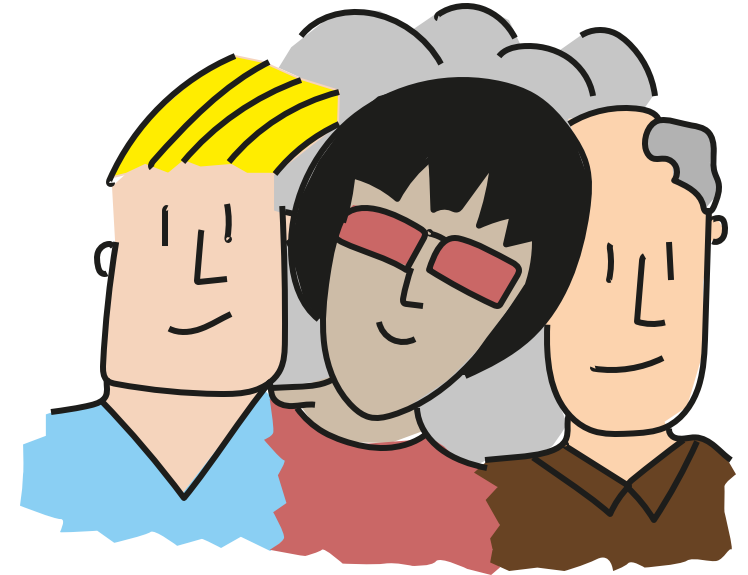
Conflict



Agreement

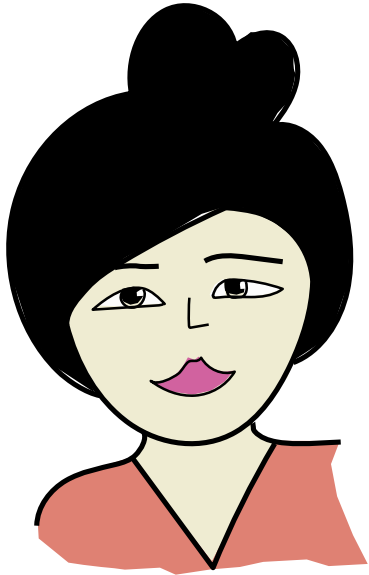


Calm



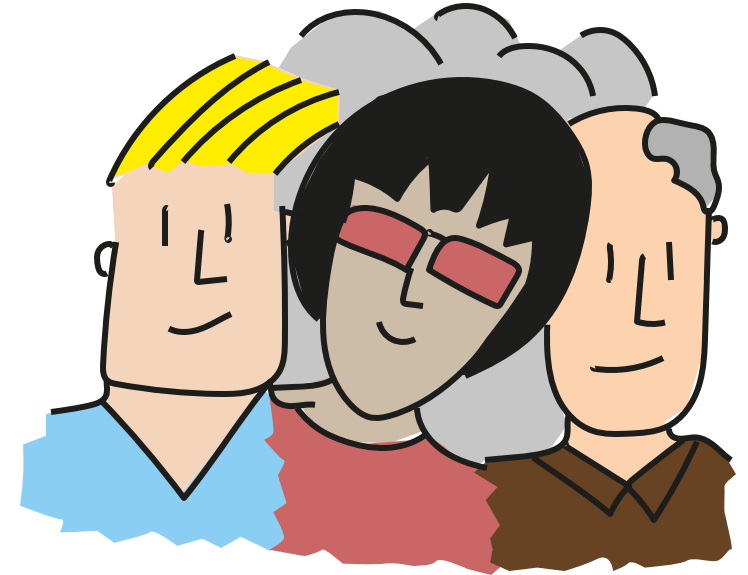
Developers

When would you prefer to have conflict and chaos? At the beginning of the project? Or the end?



Product Owner

- Establish Vision
- Support from the Organization
- Different ways of doing things
- How much is achievable?
- Who decides what?
- Finding new roles and spaces



Developers

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There is a new kid on the block

First Principles Thinking:

1. What is physically possible?
2. Make requirements less dumb
3. Eliminate parts or process steps
4. Optimize
 - Repeat steps 2 and 3
5. Accelerate
6. Automate

EVERYDAY
ASTRONAUT

RAPTOR 1



RAPTOR 2



RAPTOR 3



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When to use Scrum, when to use Lean Thinking



Scrum

- Create something new to achieve valuable, tangible results. Sooner.
- Create Capabilities, Learnings, Deliverables
- Product and Production are best developed together

Lean Thinking

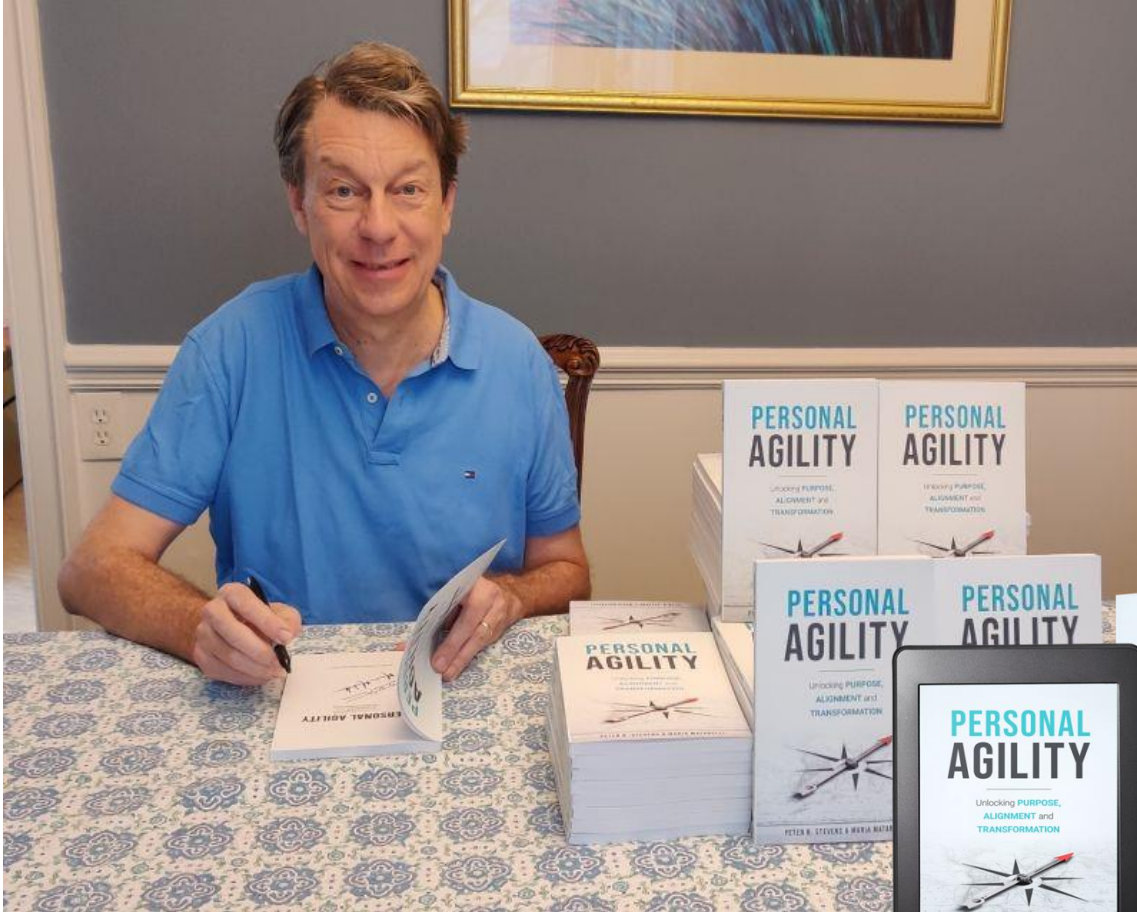
- Manage complexity to reduce waste and variability in a process
- If you have a process, understand it and measure it before you optimize it. (SIPOC analysis, Flow metrics)

My takeaways



- There is value in both Lean and Scrum. They strive to manage complexity in different contexts.
- For competitive advantage, go back to first principles.
- The beginning should look more like Scrum. It's more about Learnings and Capabilities than Deliverables
- Optimization comes later.
- Deliver incrementally. Start improving the process now, rather than aiming for a result in two years.
- Hold team and leadership together. Nothing impedes progress like a volatile organization.

Let's connect and continue the conversation



Companies come to me
to achieve their initiatives sooner.

