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Lean-Driven Innovation

Webinar

Norbert Majerus

29th May 2018

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Gartner®
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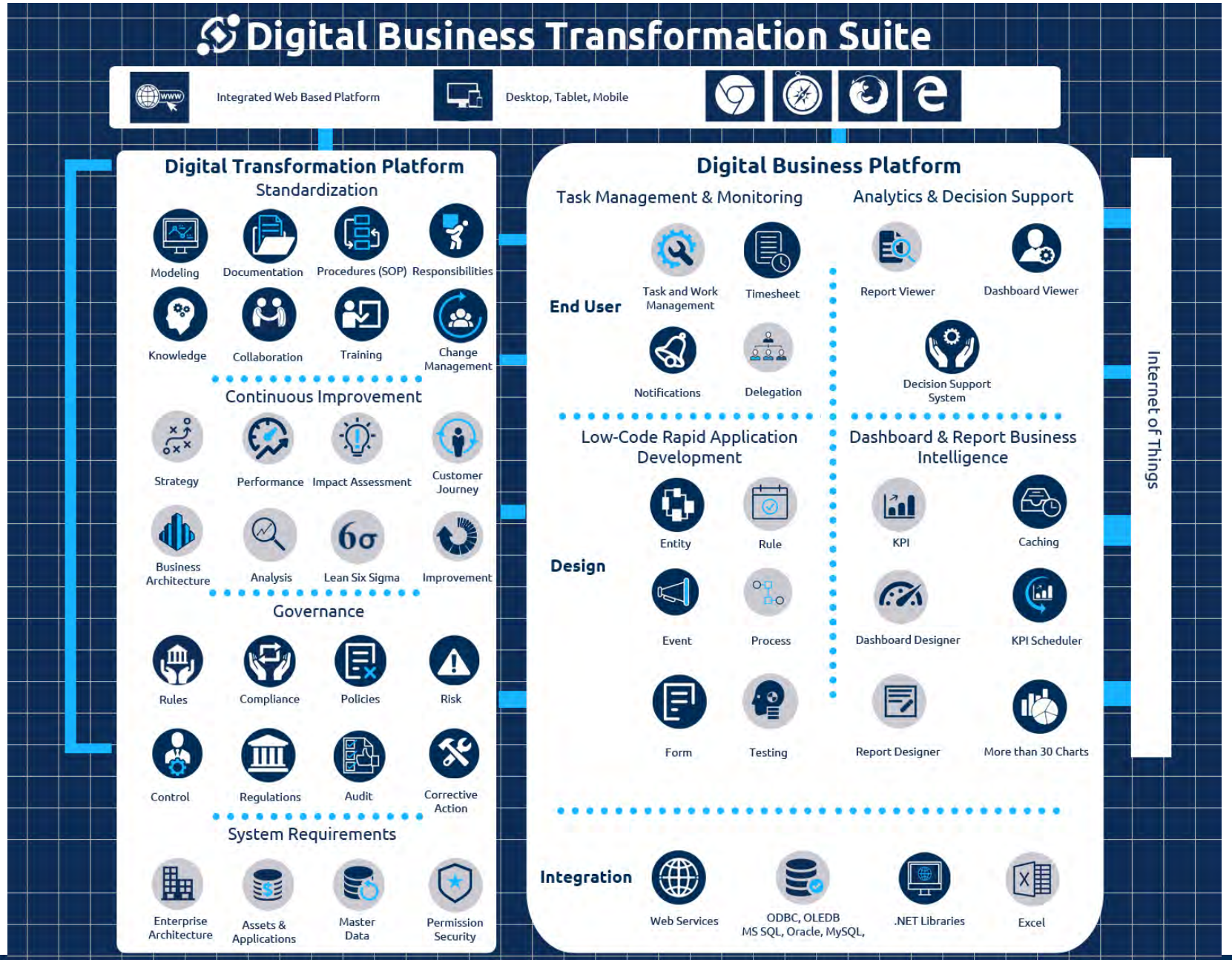
FROST & SULLIVAN
Product Leadership Award



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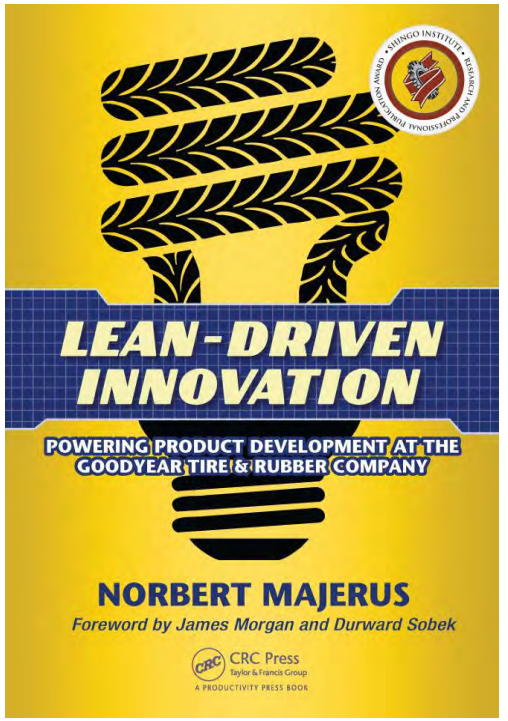
LEAN - DRIVEN INNOVATION



Norbert Majerus Consulting Ltd.
Lean Champion, Speaker, Consultant, Coach, Book Author and Shingo Prize Winner
www.norbertmajerus.com

SHINGO INSTITUTE | JON M. HUNTSMAN SCHOOL OF BUSINESS UtahStateUniversity

Why Do Great Companies Fail at Innovation?

Companies do not fail because they fail to build a product

Companies fail because they fail to build what customers want*

*Diana Kander, All In Startup, Wiley, 2014

Service Innovation

Why Lean?

- Safety/quality were good (must continue trend)
- Late on almost all launches – only contracted work was on time (less than 20%)
- Extremely slow
- Less than 50% of the projects were profitable
- Engagement scores less than acceptable and people quit for lack of work
- "We could help you improve your process if you had one"

7 Years Later

Safety, quality – all time high

1,500, 95%, 100%

75%

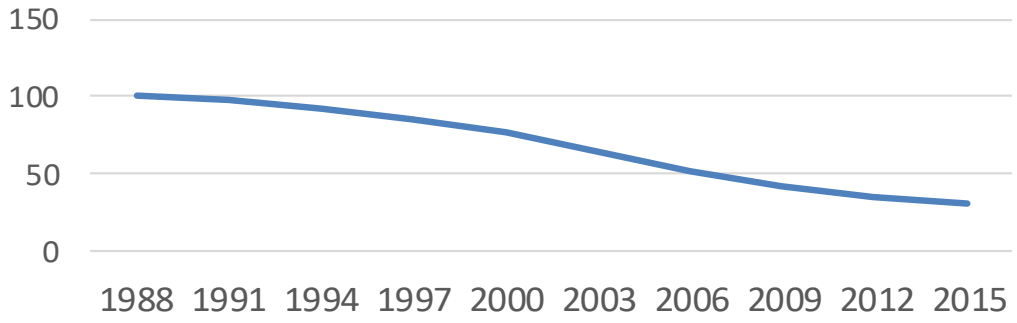
3x

Better engagement

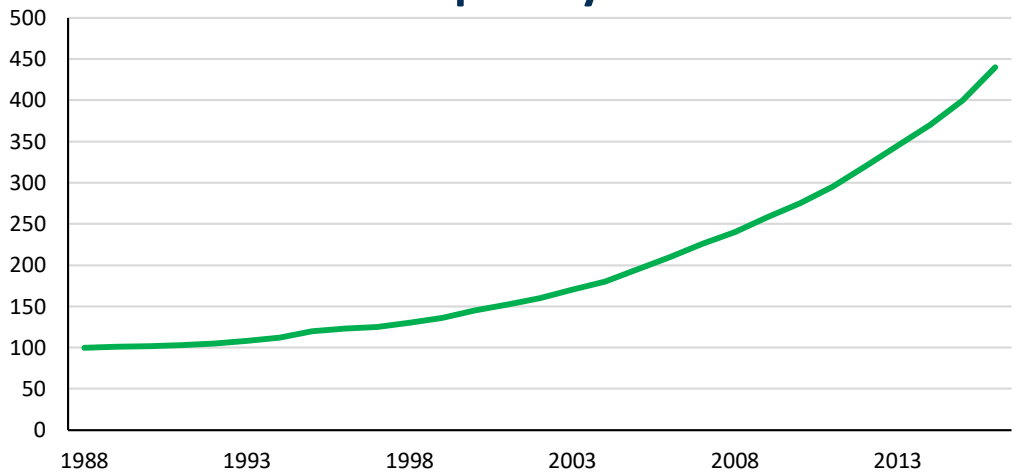
2016 Recipient of the AME OpEx Award

2017 Global R&D

Product Life Cycles

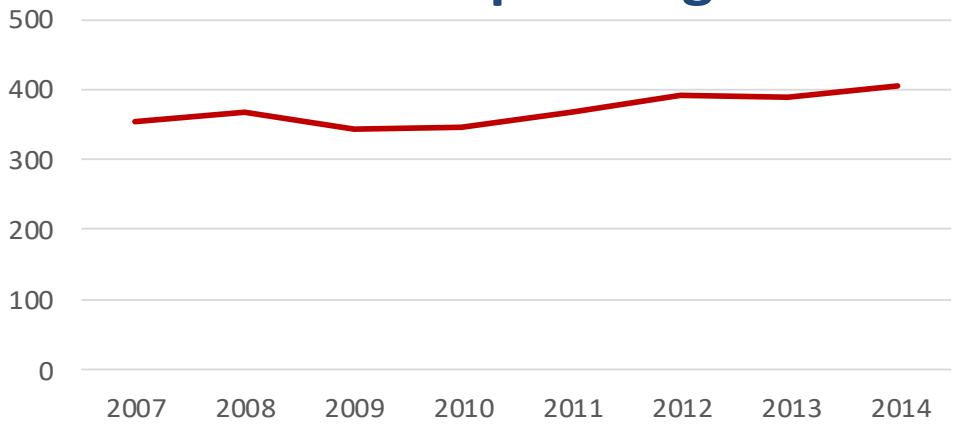


Complexity Index



Learn to do More with Less

R&D Spending



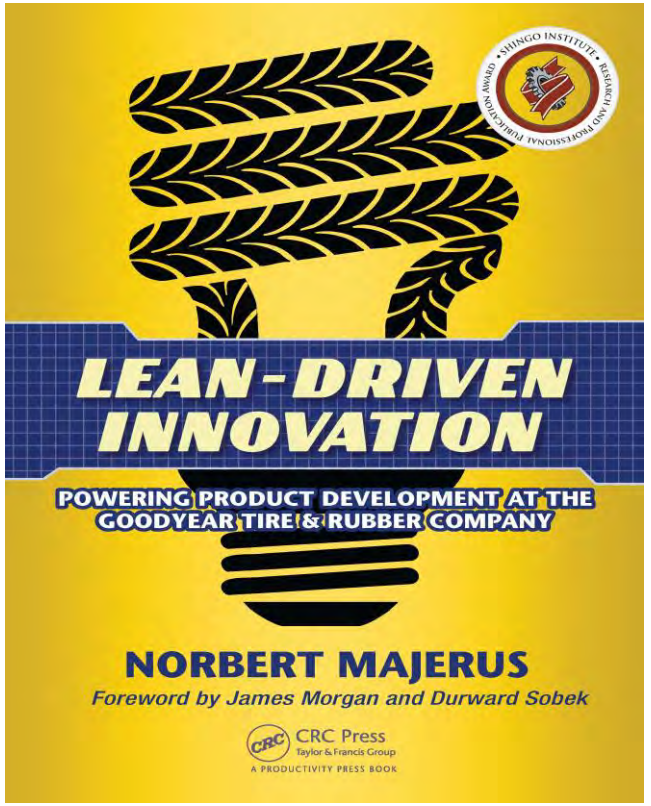
Goodyear data and estimates

What I (we) Learned

Pre-requistites

Process

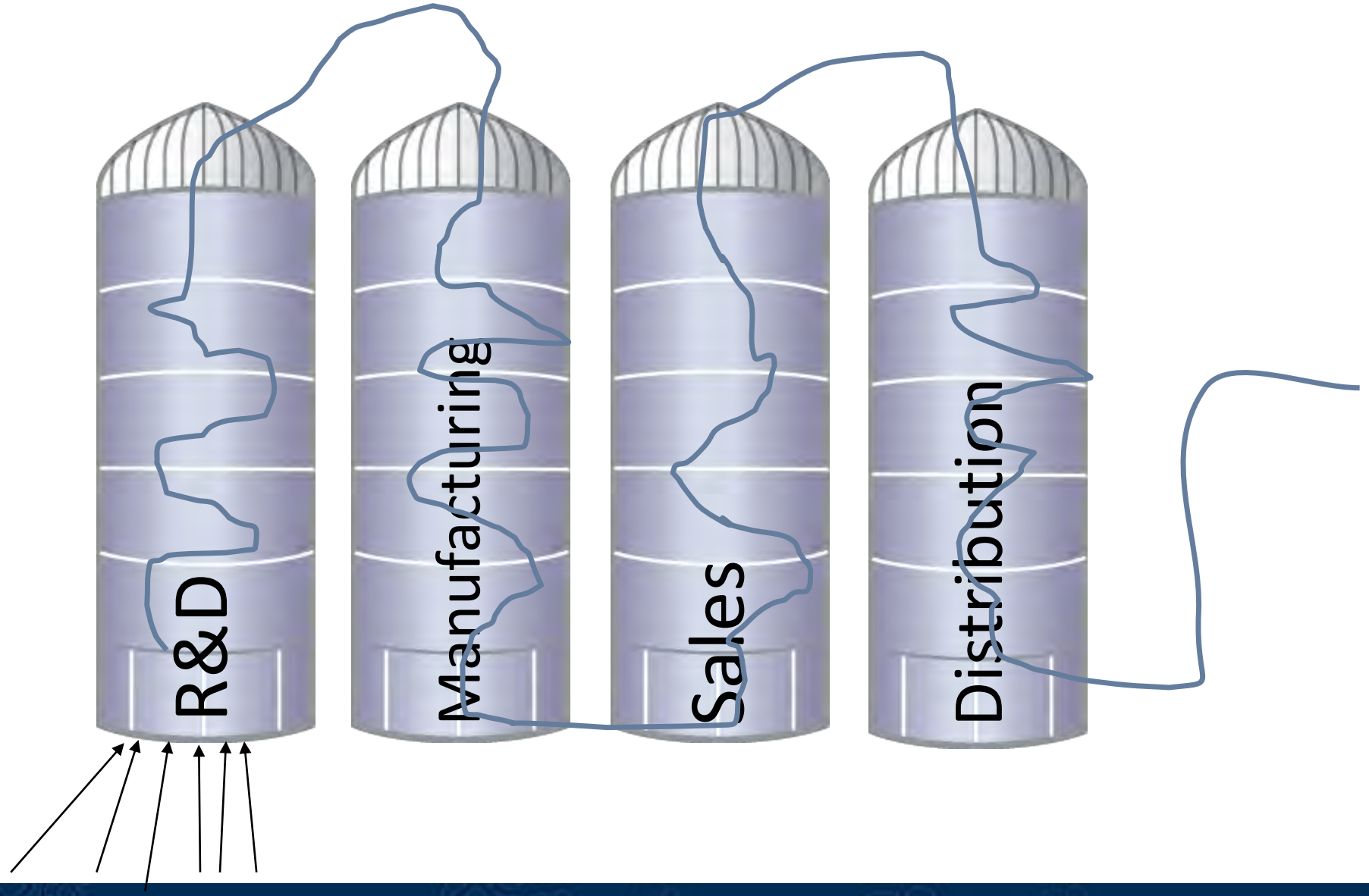
People



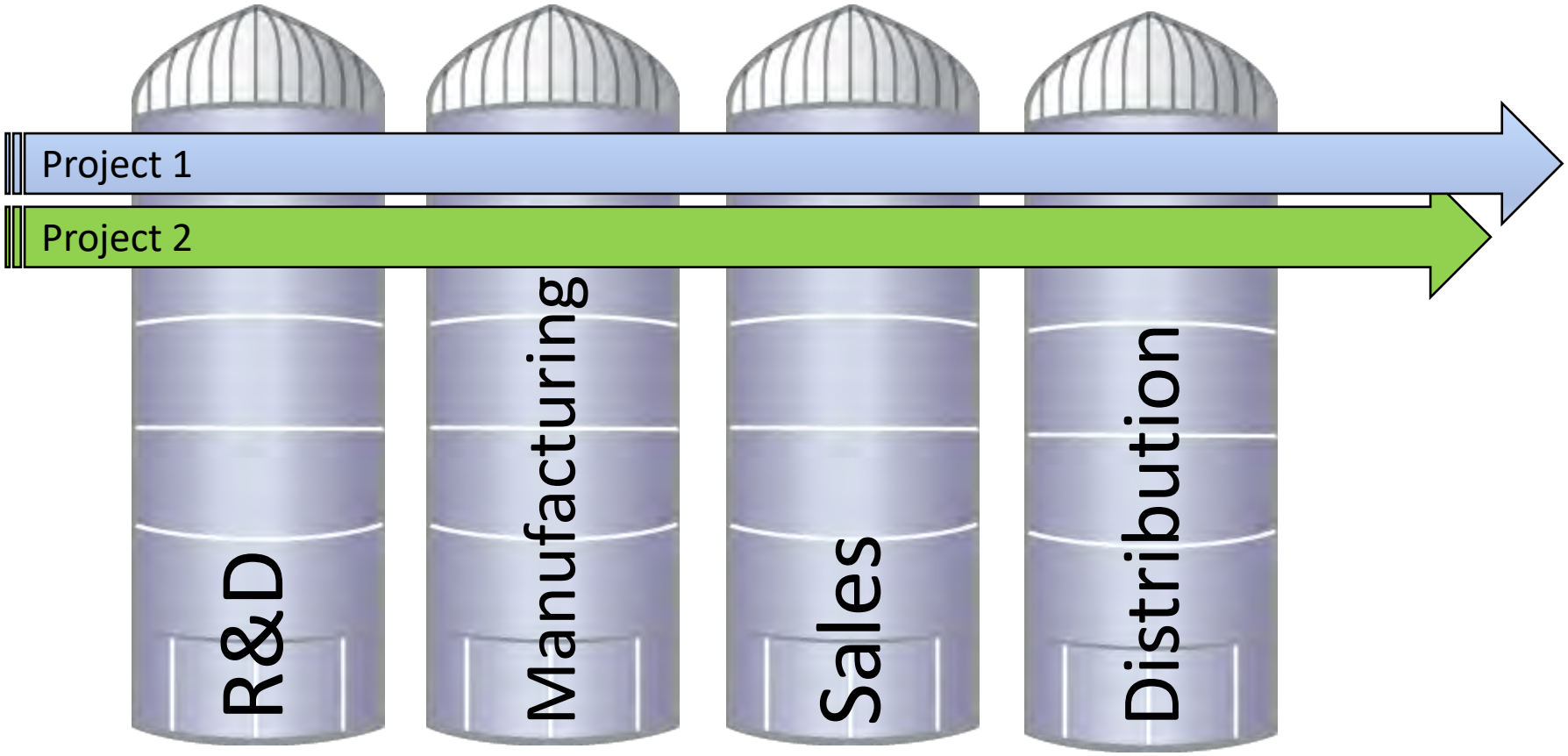
Pre-Requisites

- Organization - PM
- You may just as well do something significant
- The one with the most tools does not win
- Shadows
- Value Streams
- Collaboration
- The one with most knowledge wins

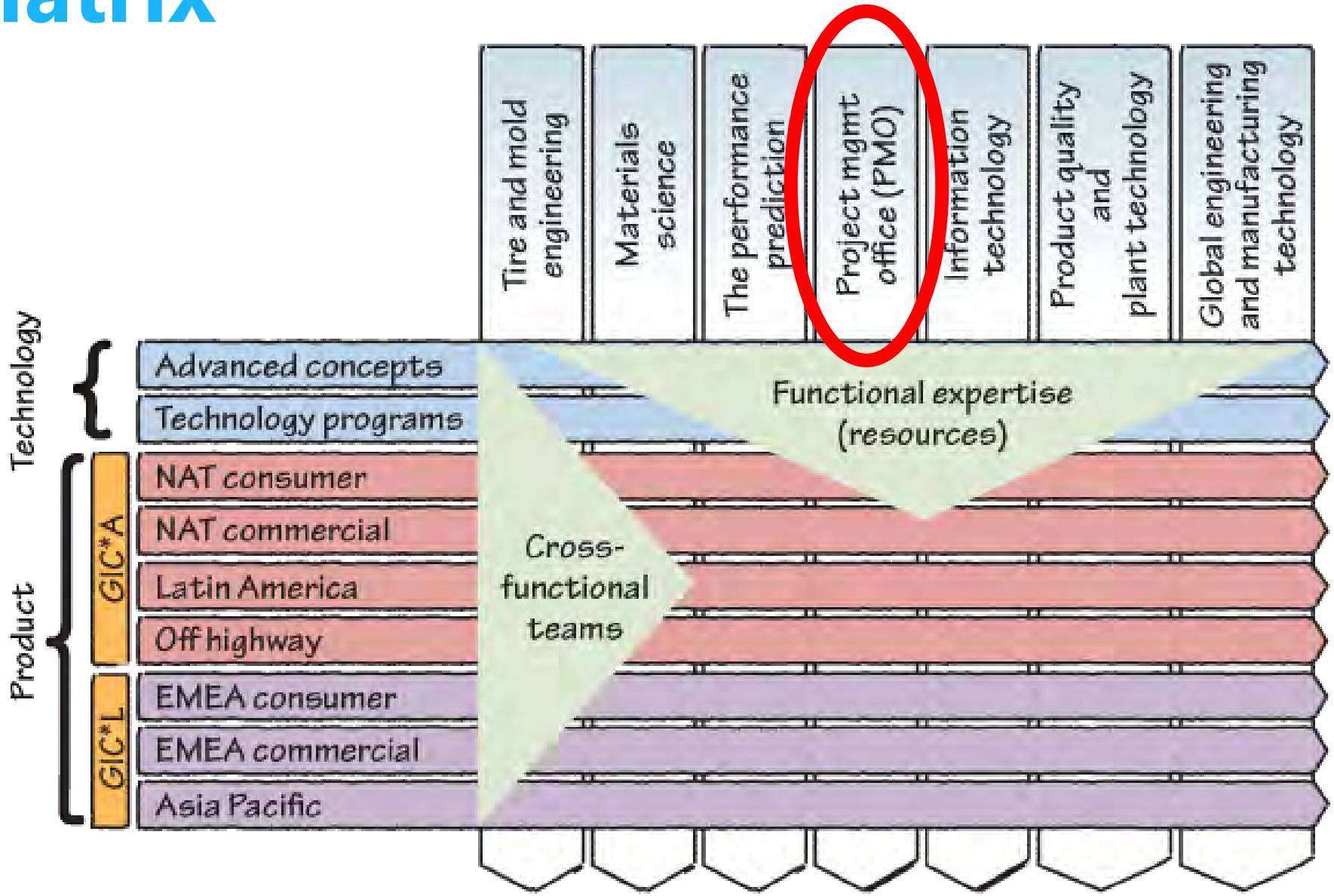
Desired Organization



Desired Organization



Matrix



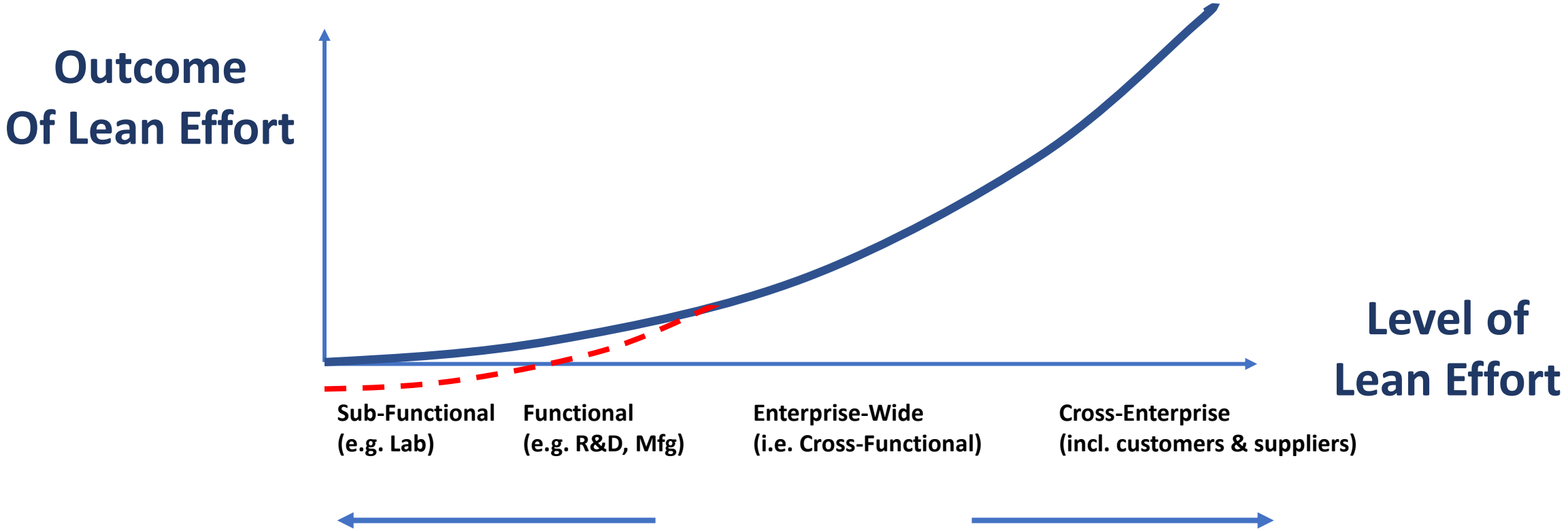
Basis of Agile

Toyota – HR responsibility

Organization Necessary – Not Sufficient

- Moving people where the work is - requires flexibility and standard work
- Project managers (Chief Engineers)
- PMO (FUNCTION) needed
- Not all chief engineers are “supermen” but they:
  - Represent the customer
  - Manage by influence, not authority
  - Drive collaboration and alignment

You may just as well do something that shows REAL Results



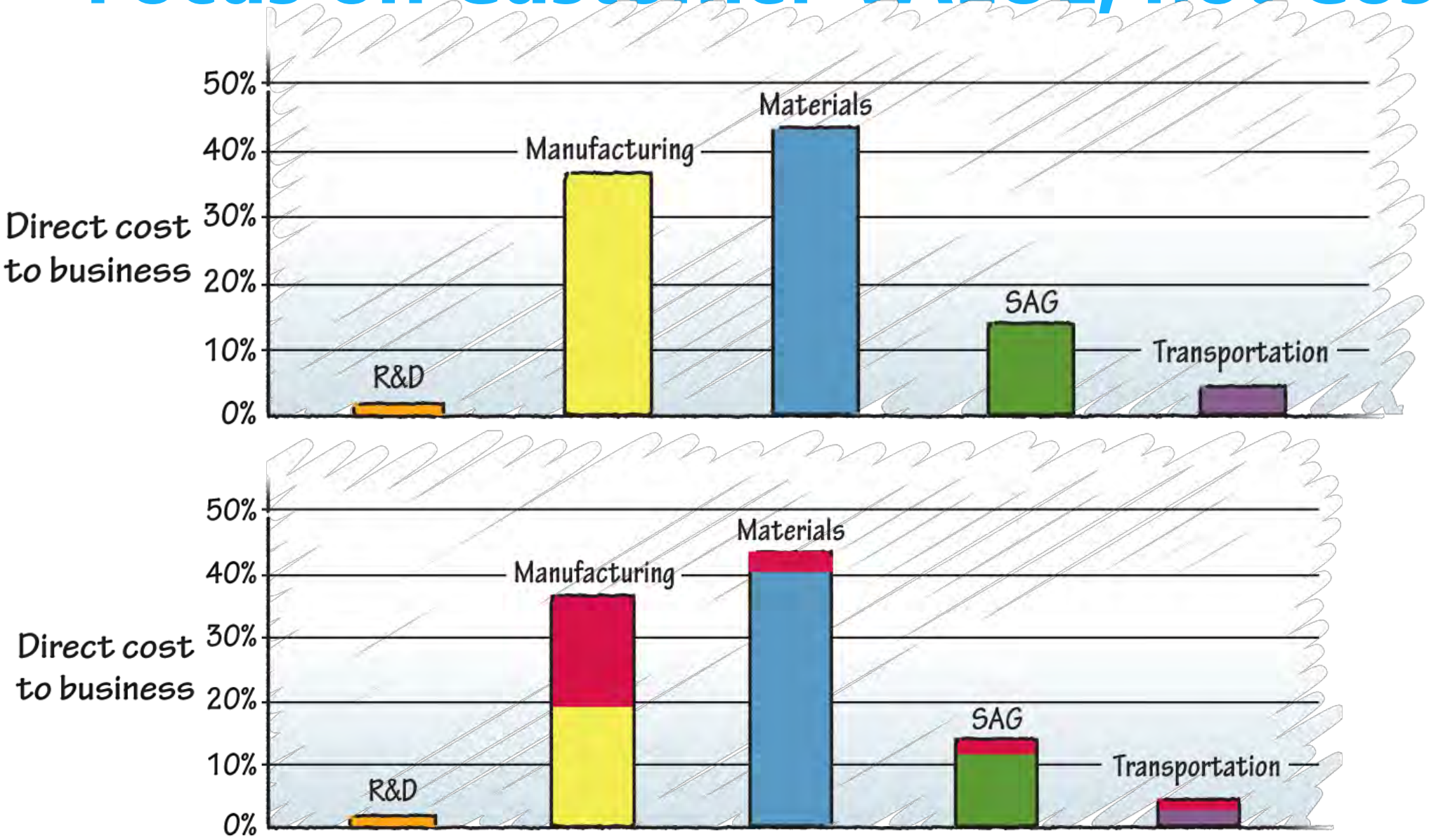
Chances for visible results are better if lean is applied on the highest level of the process

The One With The Most Tools Wins

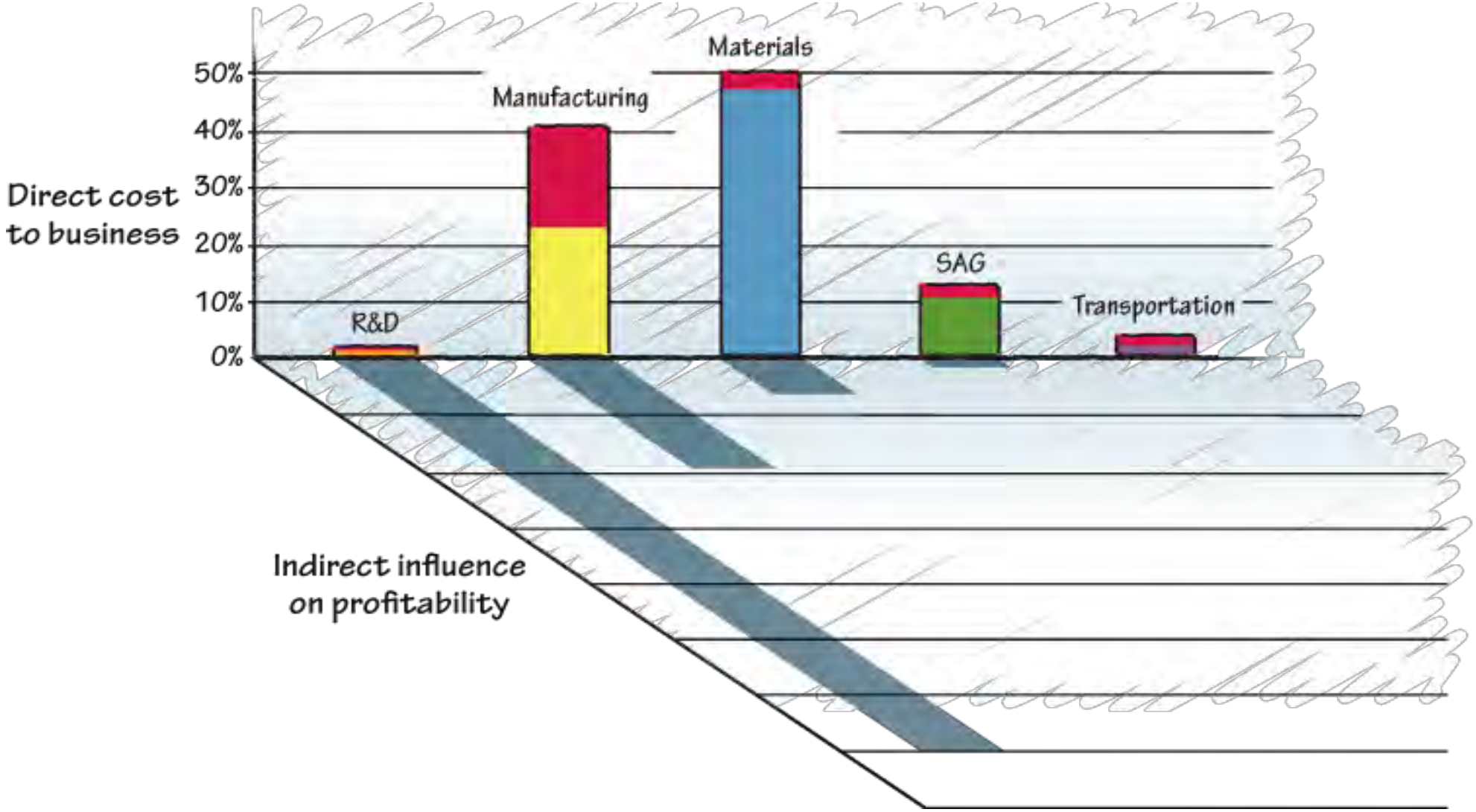
Mindset,
Skillset,
Toolset

Agile….

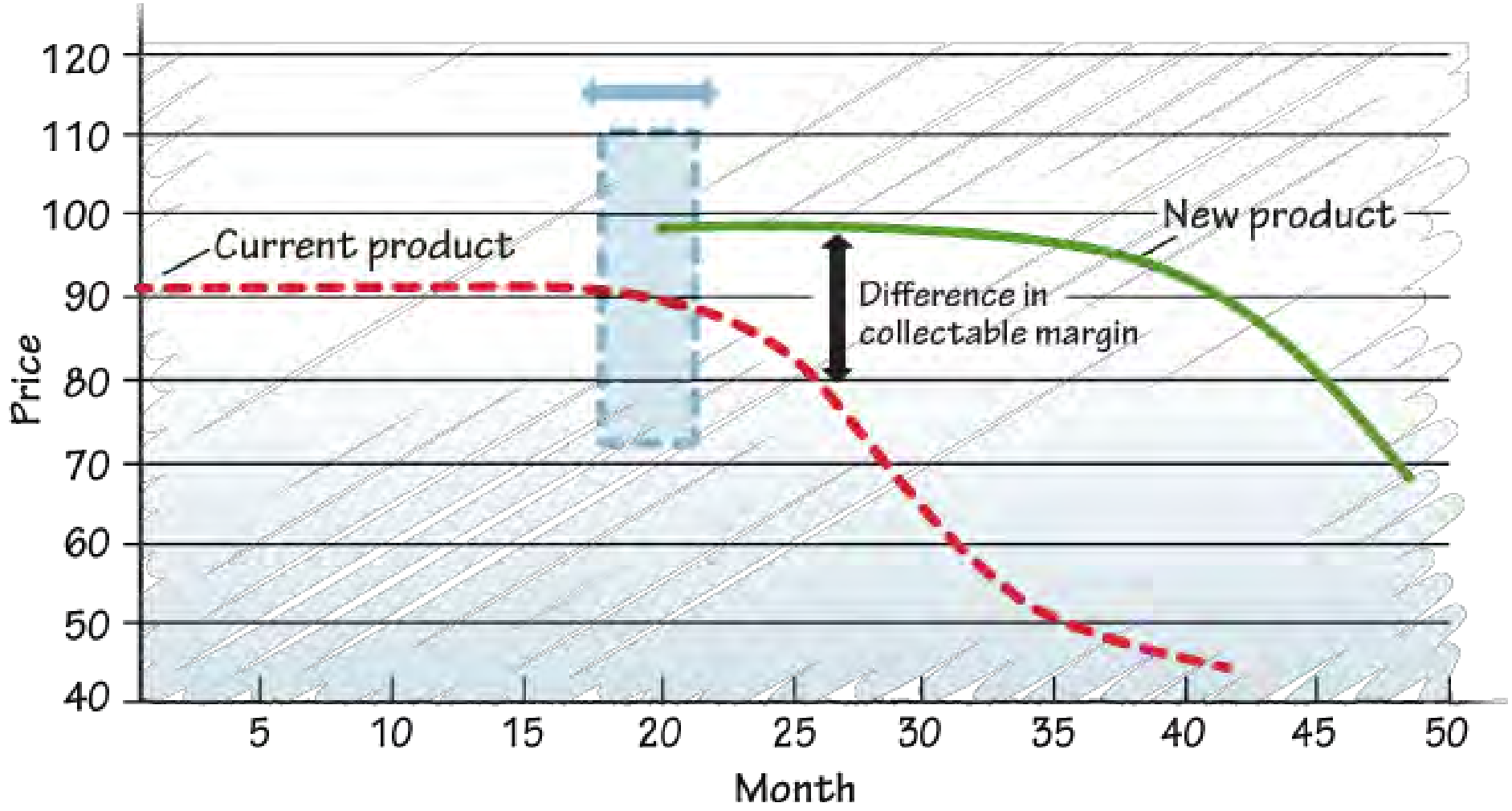
Focus on Customer VALUE, not Cost



Create Value in the Shadows

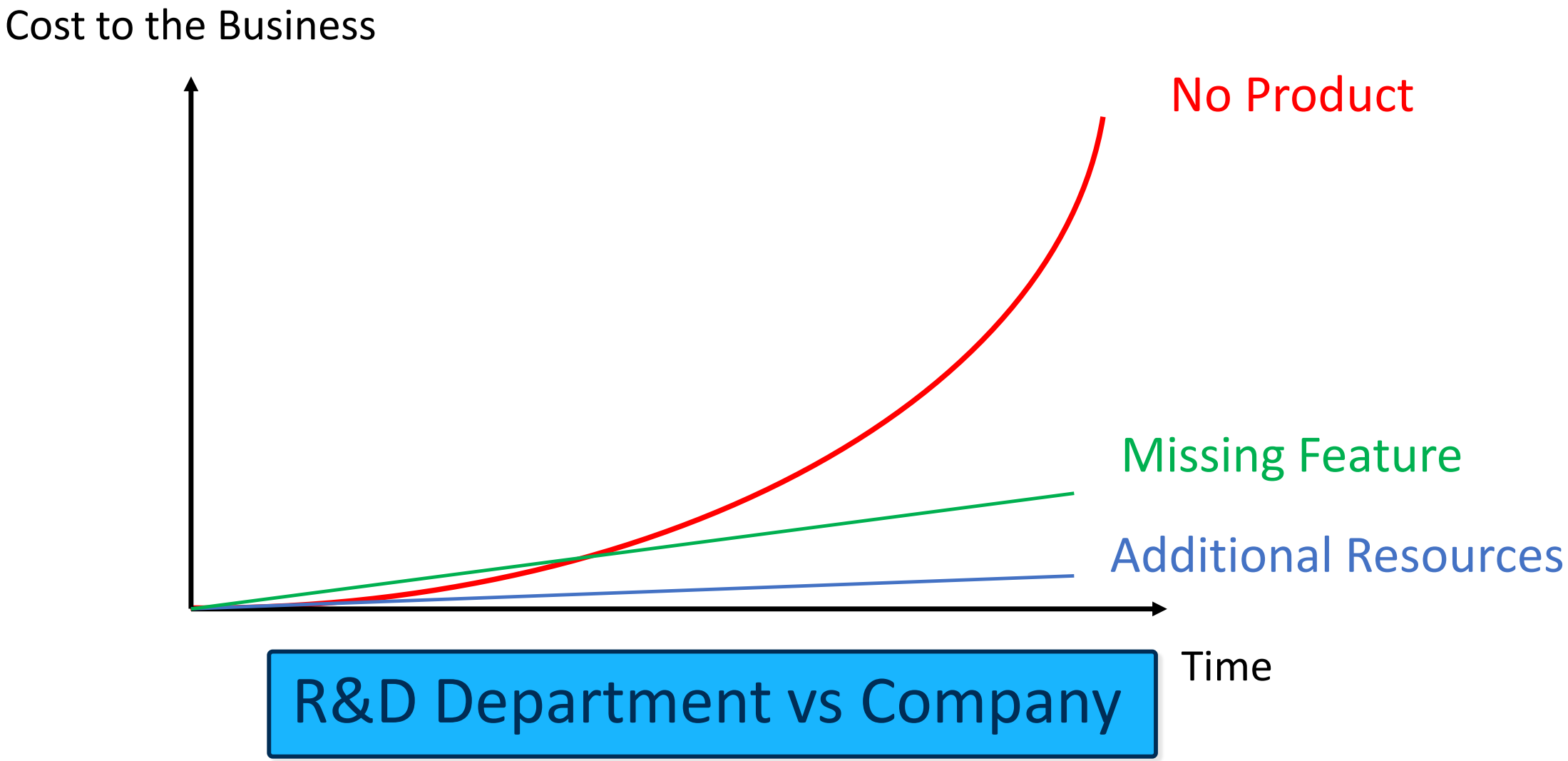


The Cost of Time in Innovation

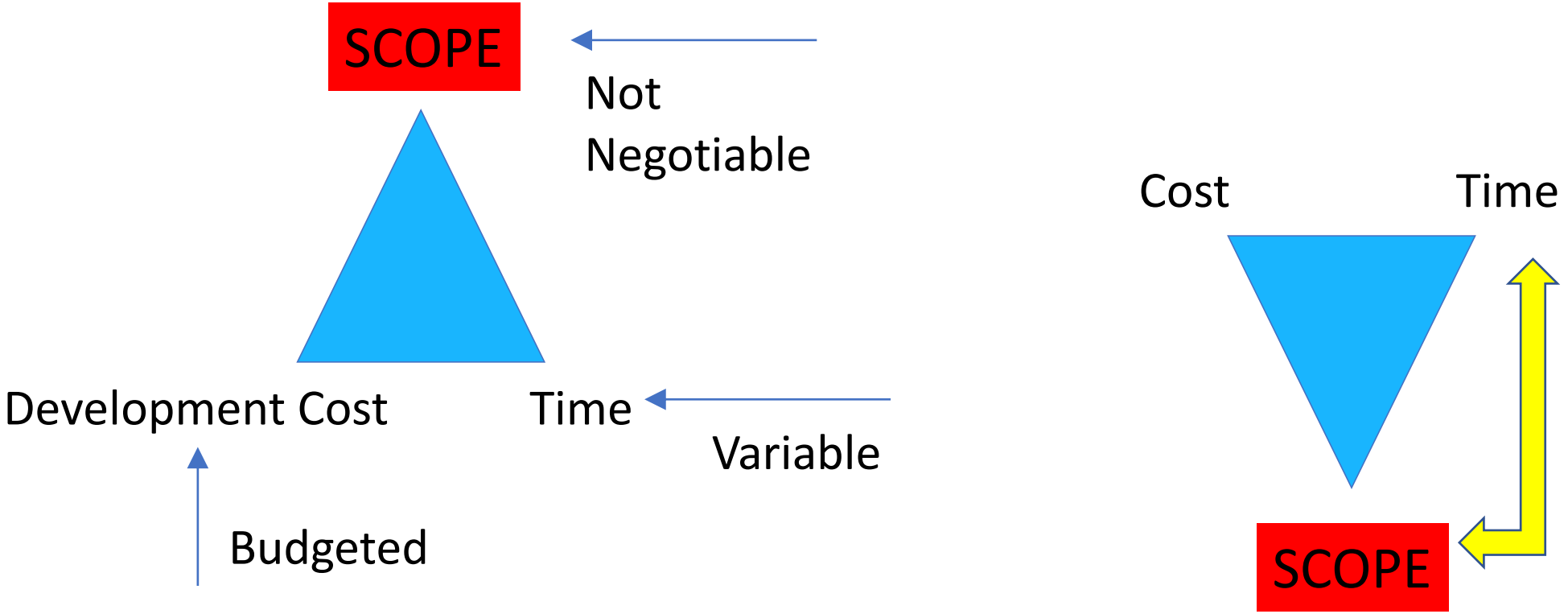


Goodyear Fuelmax

The Cost of Time/Delay



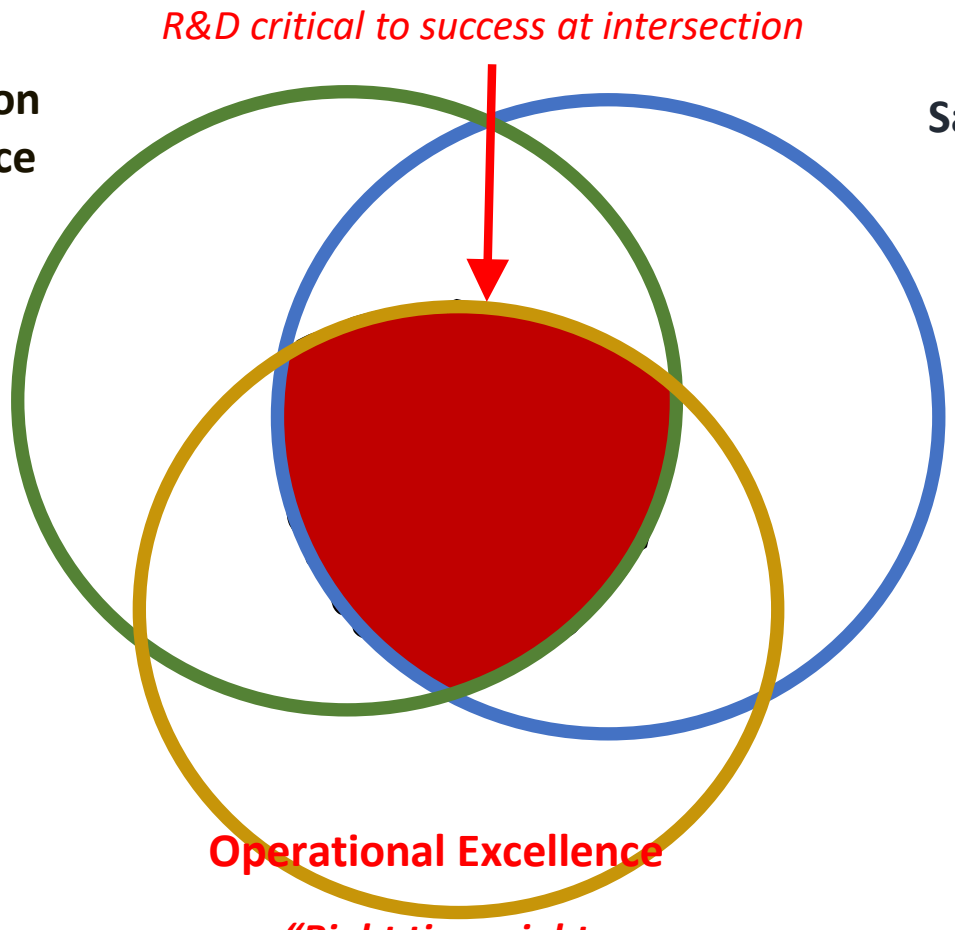
The Upside Down Triangle



Understand the Cost Of Time

New Product Launch

Winning at the Intersections



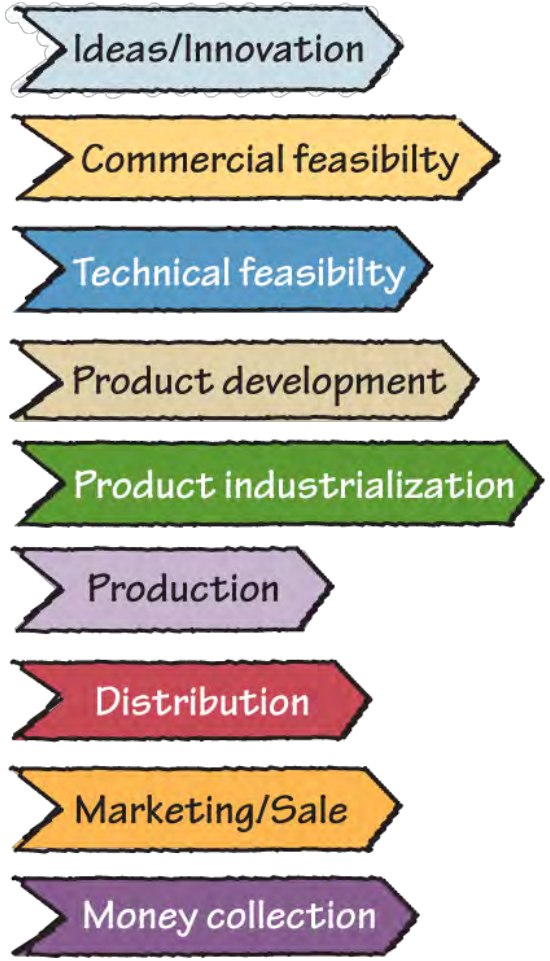
Design for Manufacturing

Collaborate and align to win at the intersection

Compromise = easy way out

Understanding Value Streams

Concurrent Engineering



Knowledge Management

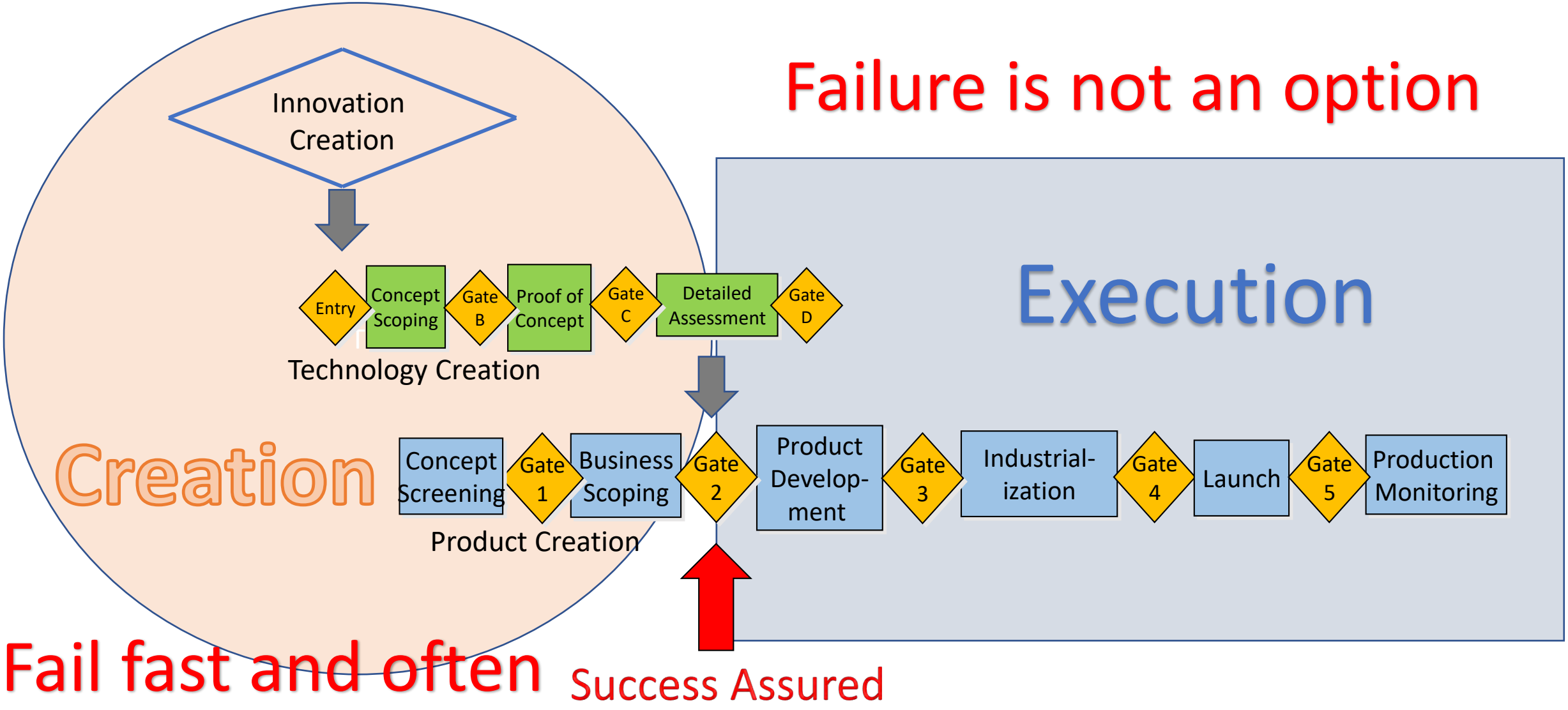
What have you invested in KNOWLEDGE?

Where is the Knowledge today?

How is it being used?

Competitiveness is defined by "Who can learn the fastest"

Can Innovation Have a Process?



Execution Phase

Generates company income – and platform for launching innovation

Inspired by lean manufacturing

Goodyear 2016 AME Excellence Award - Innovation Center

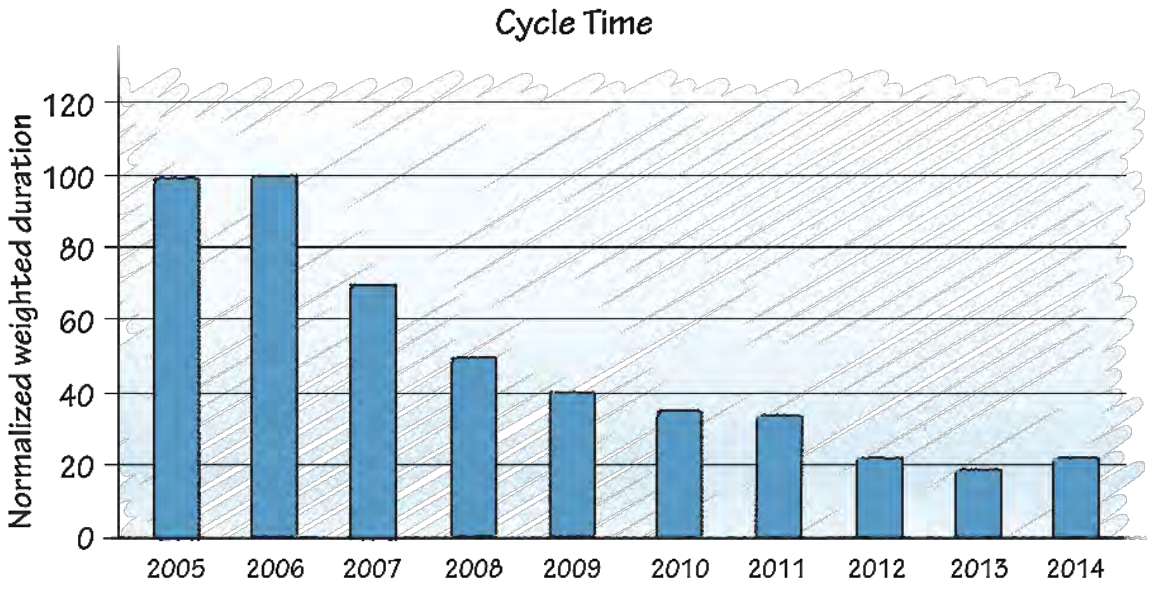
100% delivered on time

Fast is better than slow

Innovation Speed

If I had only one thing to focus on, it would be SPEED

- Competitive advantage
- Faster Learning, better risk management
- Better cash flow
- **Collaterals of efficiency**

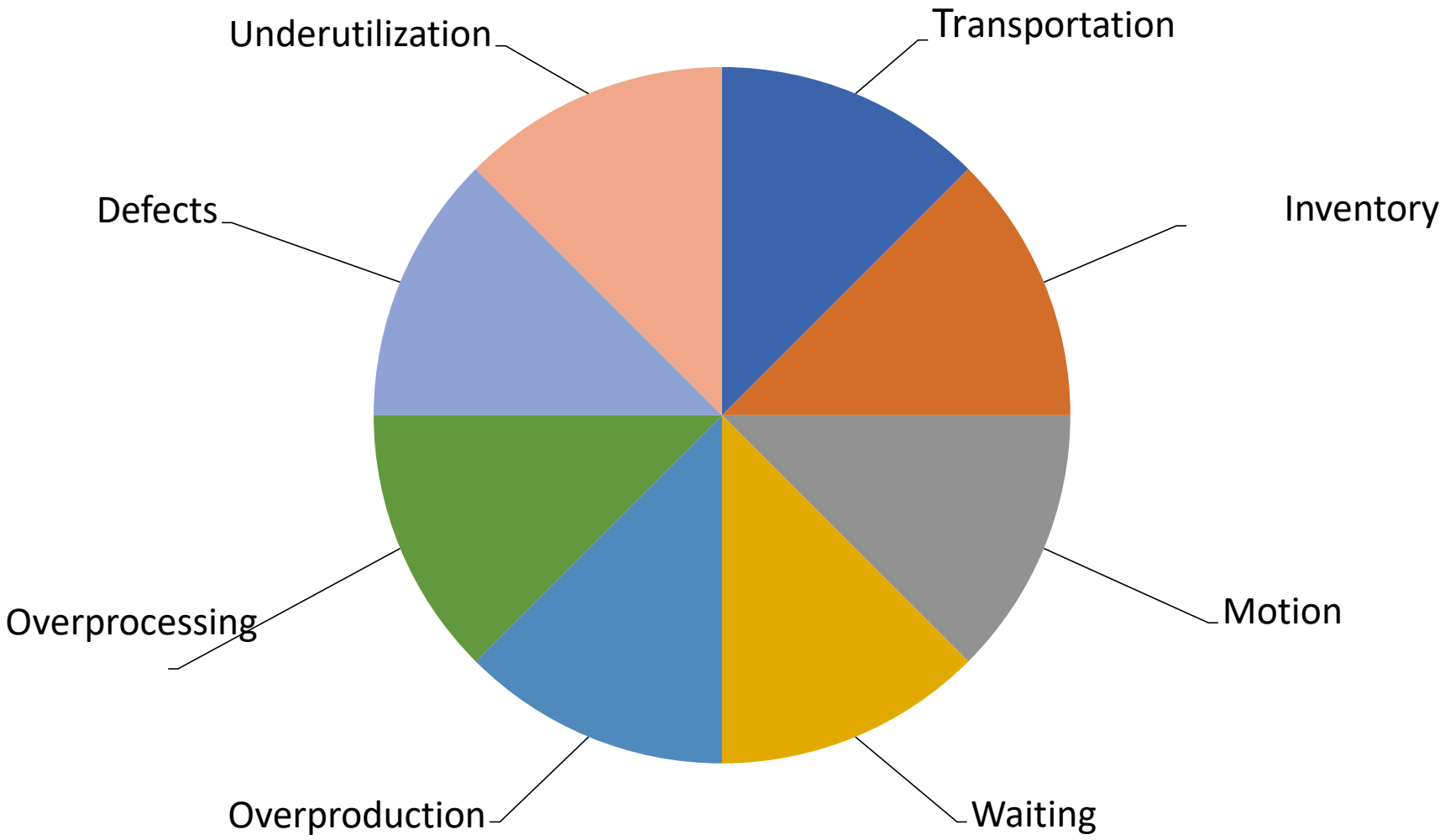


Some Goodyear iterations require more time than others. In order to track cycle time across all iterations, regardless of the varying time, Goodyear established a measure of normalized weighted duration, establishing a base of 100 in 2005.

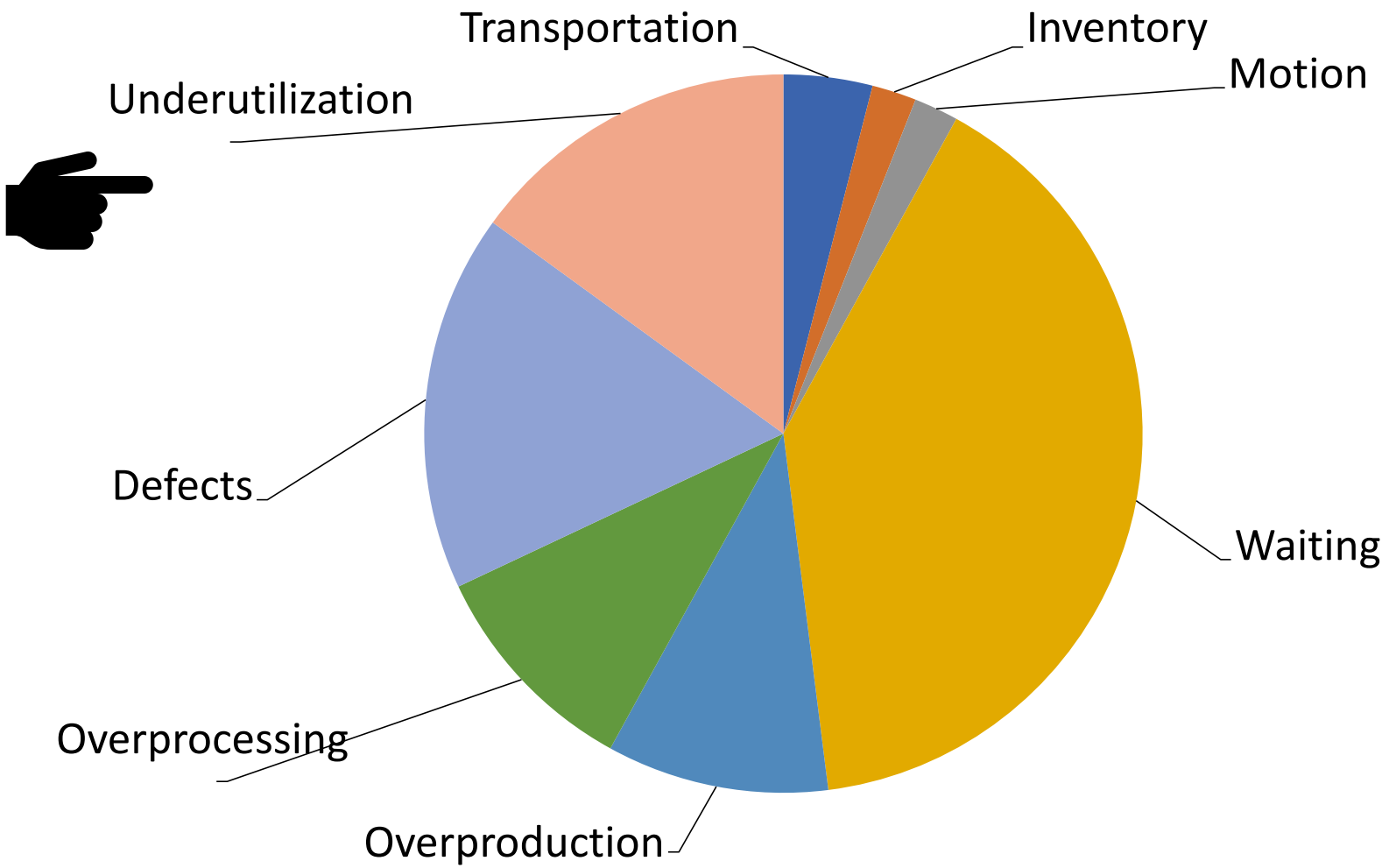
Fast is Better Than Slow

- ❑ Eliminate Waste
- ❑ Rapid learning cycles / MVP
- ❑ Flow and Pull
- ❑ Visual Management
- ❑ Managing to Capacity

Waste

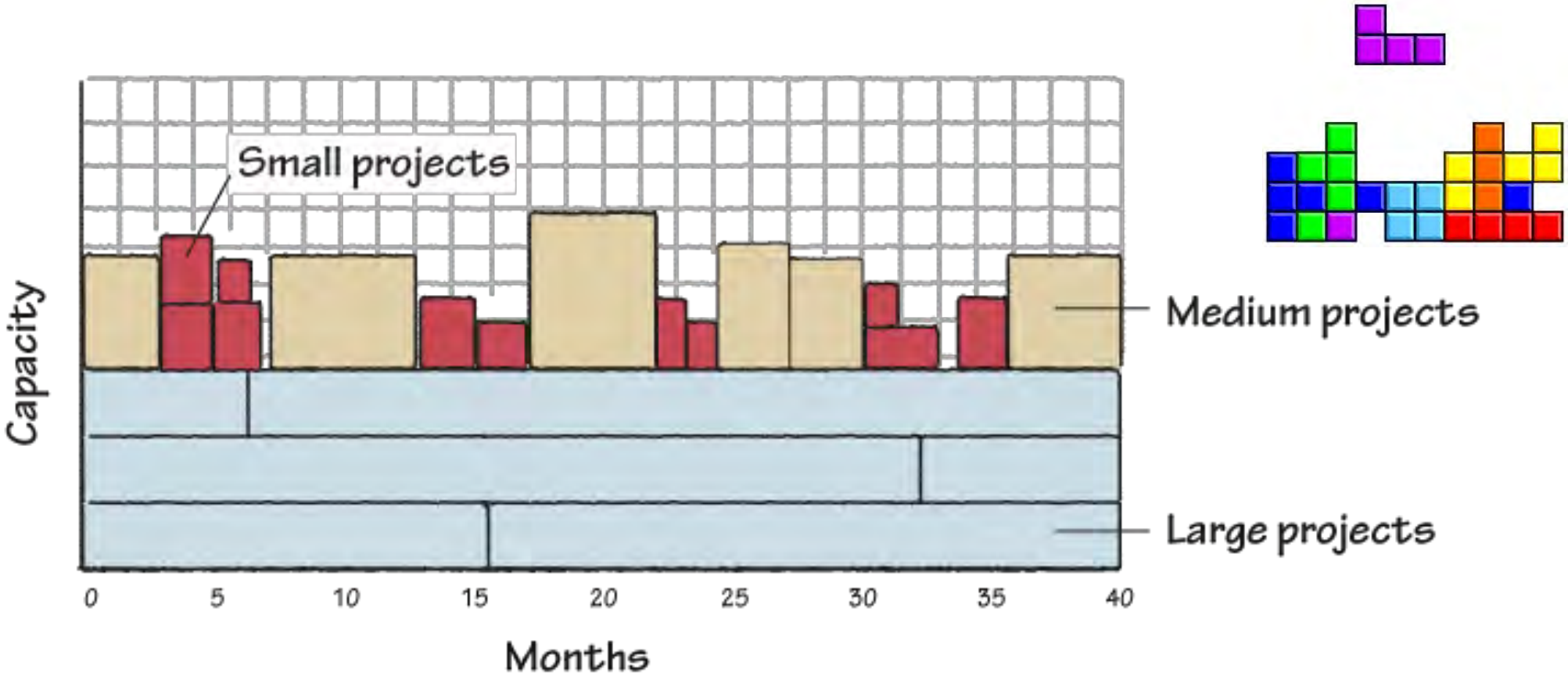


Waste

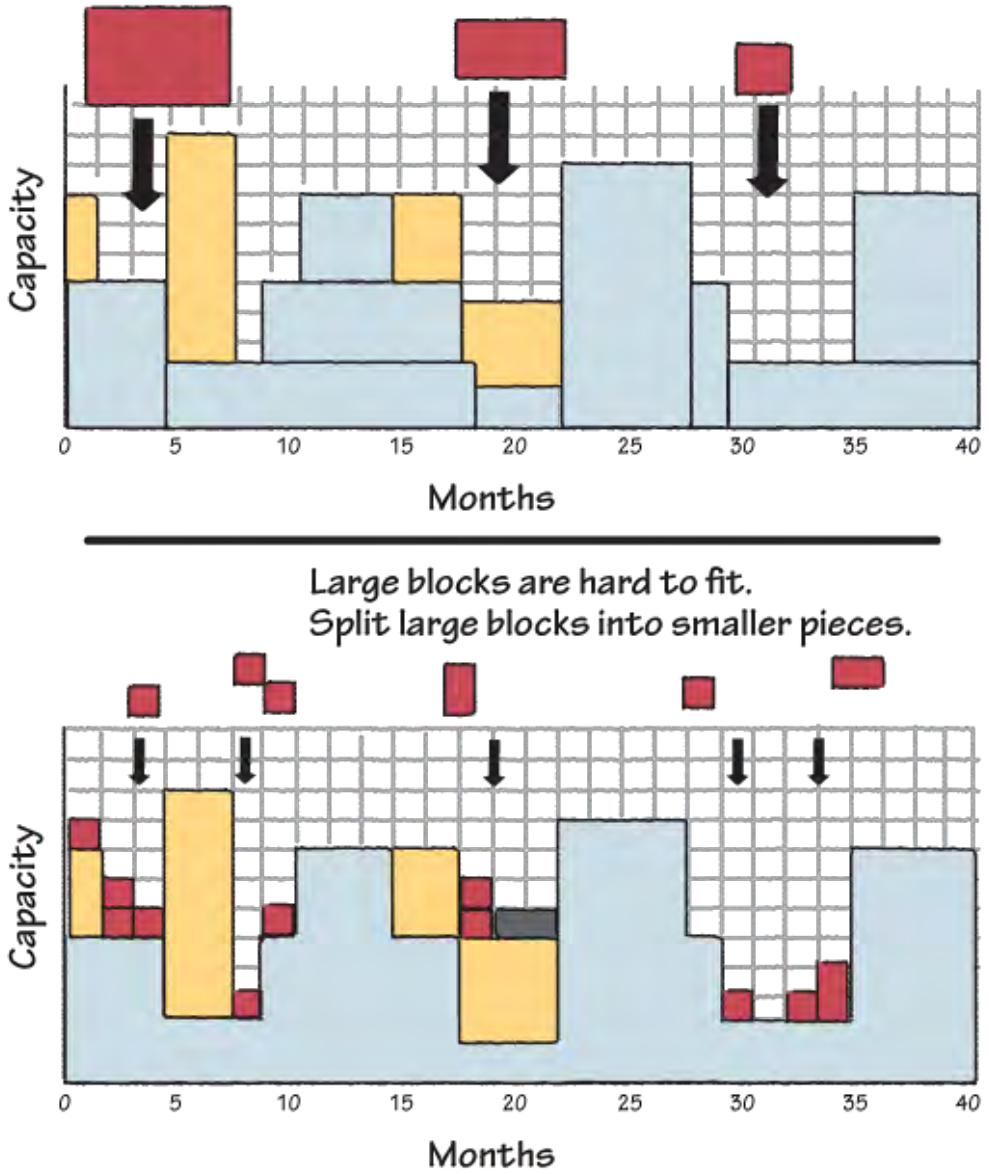


How do you eliminate WAITING?

Tetris Principle



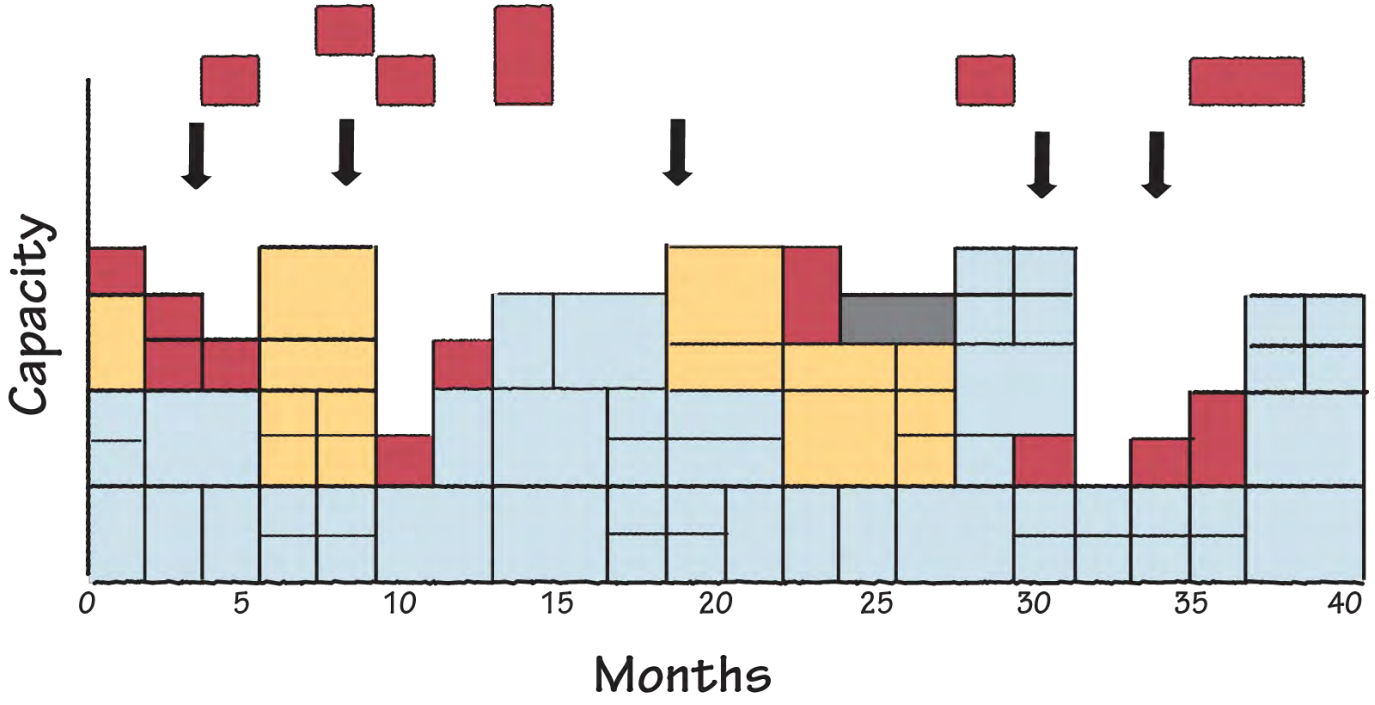
Tetris Principle



Short Cycles to
- Learn faster
- Schedule easier
- Manage the risk better

Tetris Principle

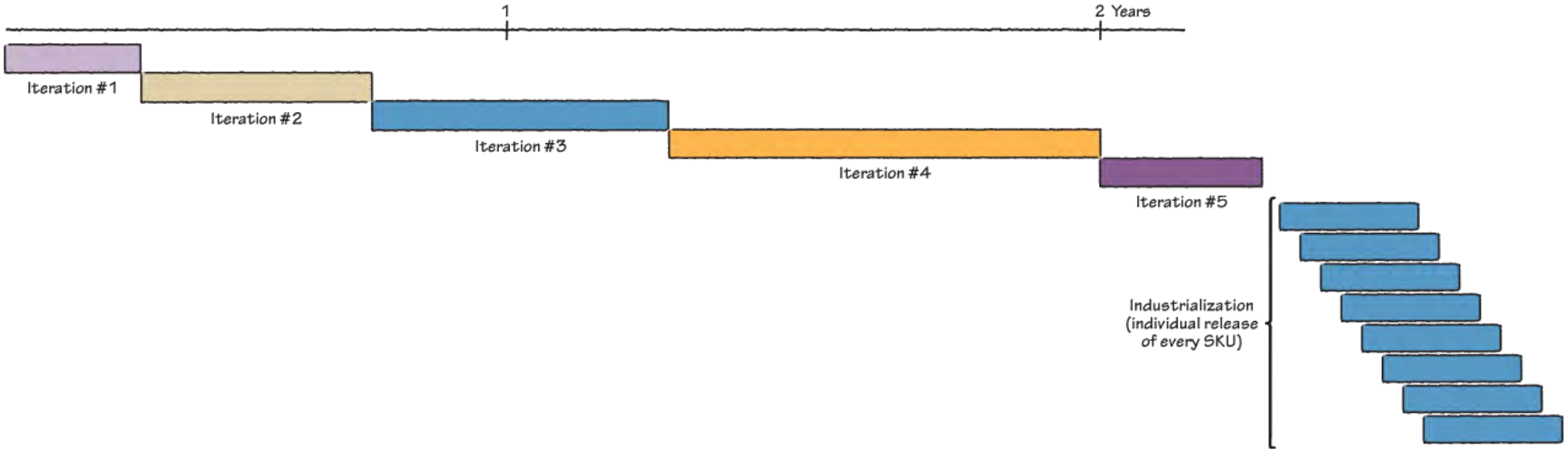
Large blocks are hard to fit.
Split large blocks into smaller pieces.



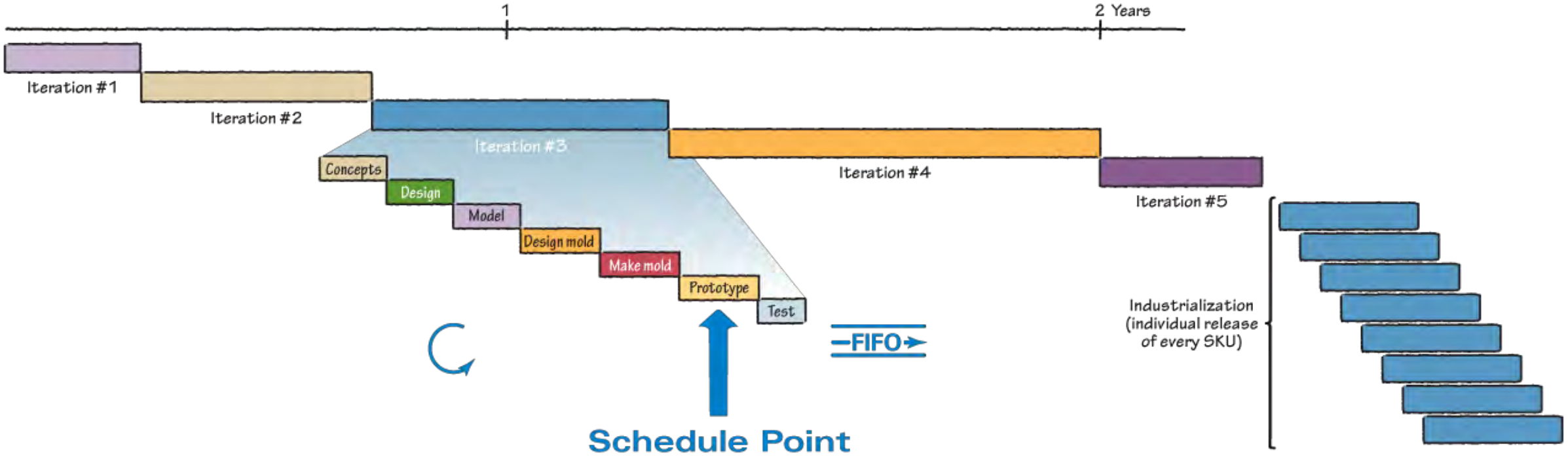
Short Cycles

- Are easier to schedule
- Allow better risk management
- Create knowledge faster
- Create Agility

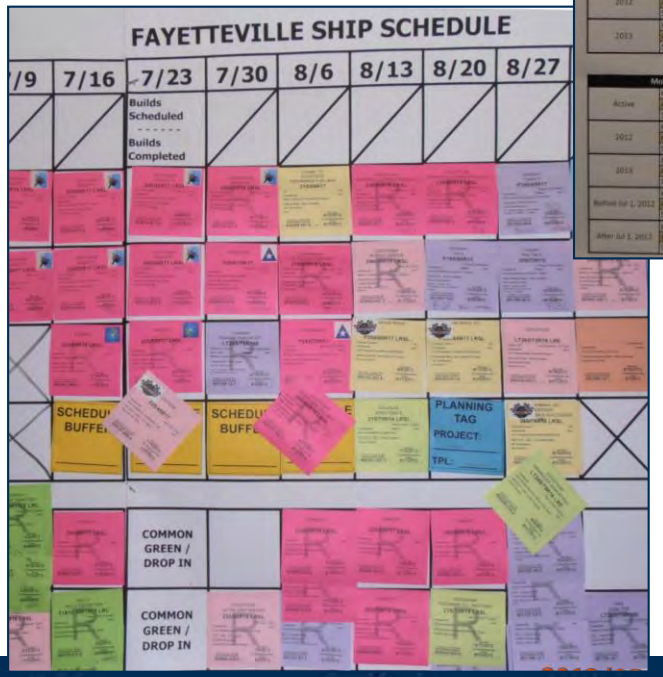
Goodyear Iterations



Goodyear Iterations



10 Second Rule



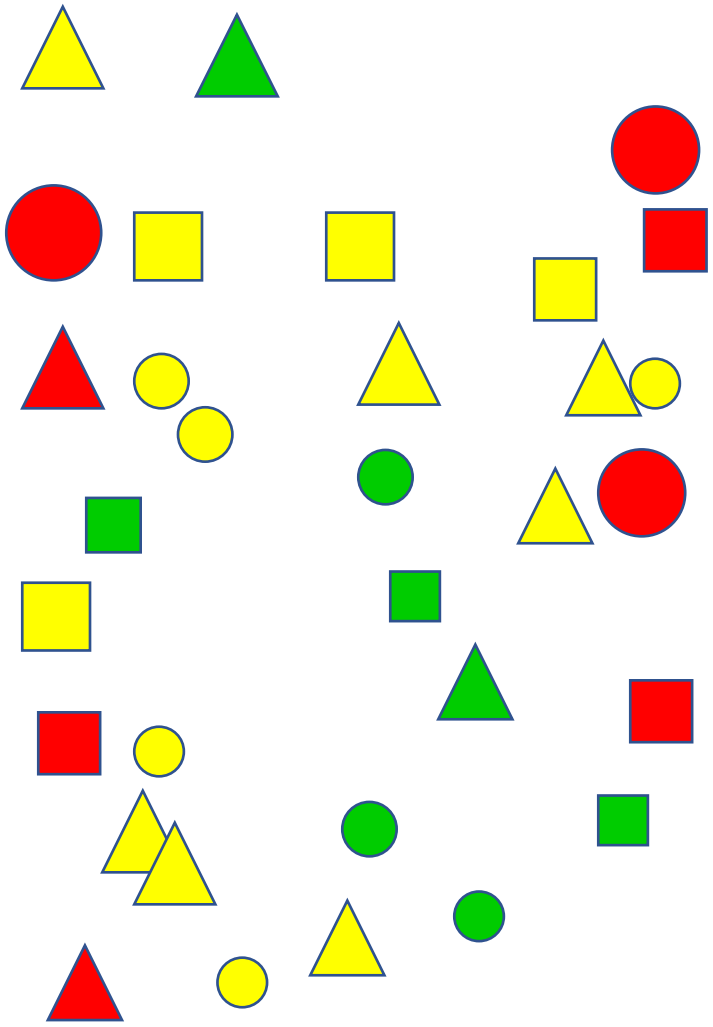
Visual Management

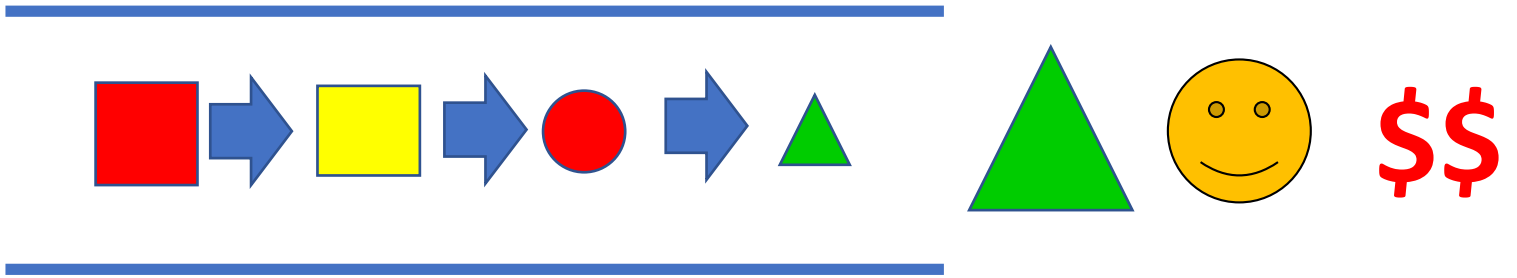
- Show deviation from standard – 10 sec rule
- QUICKLY activate **standard problem solving process**
  - One time deviation
  - Systemic Problem
- Verify Solution
- Make new Standard

"The primary role of managers must shift from firefighting to designing, aligning and improving systems."

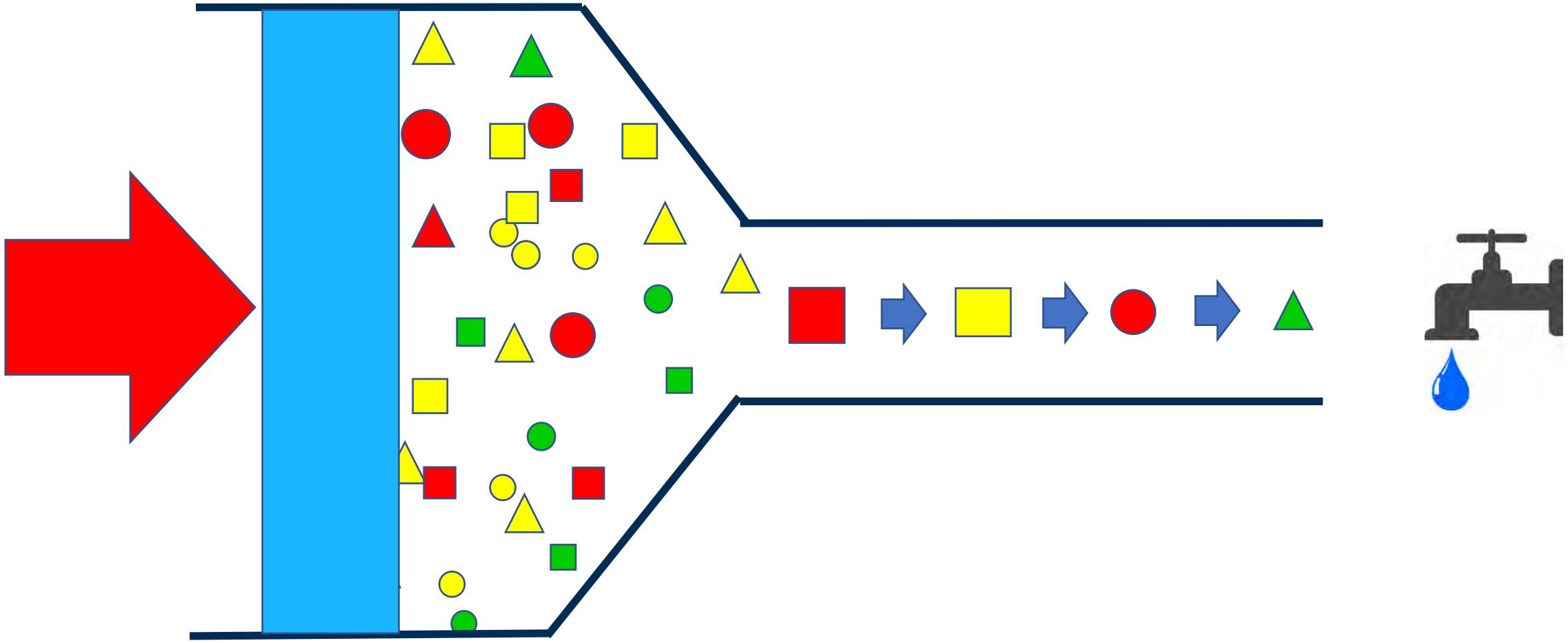
- Shigeo Shingo

Schedule To Capacity





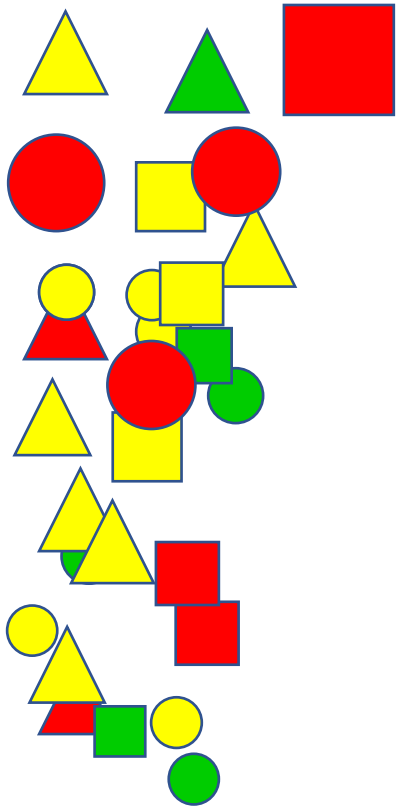
Hydraulic Principle

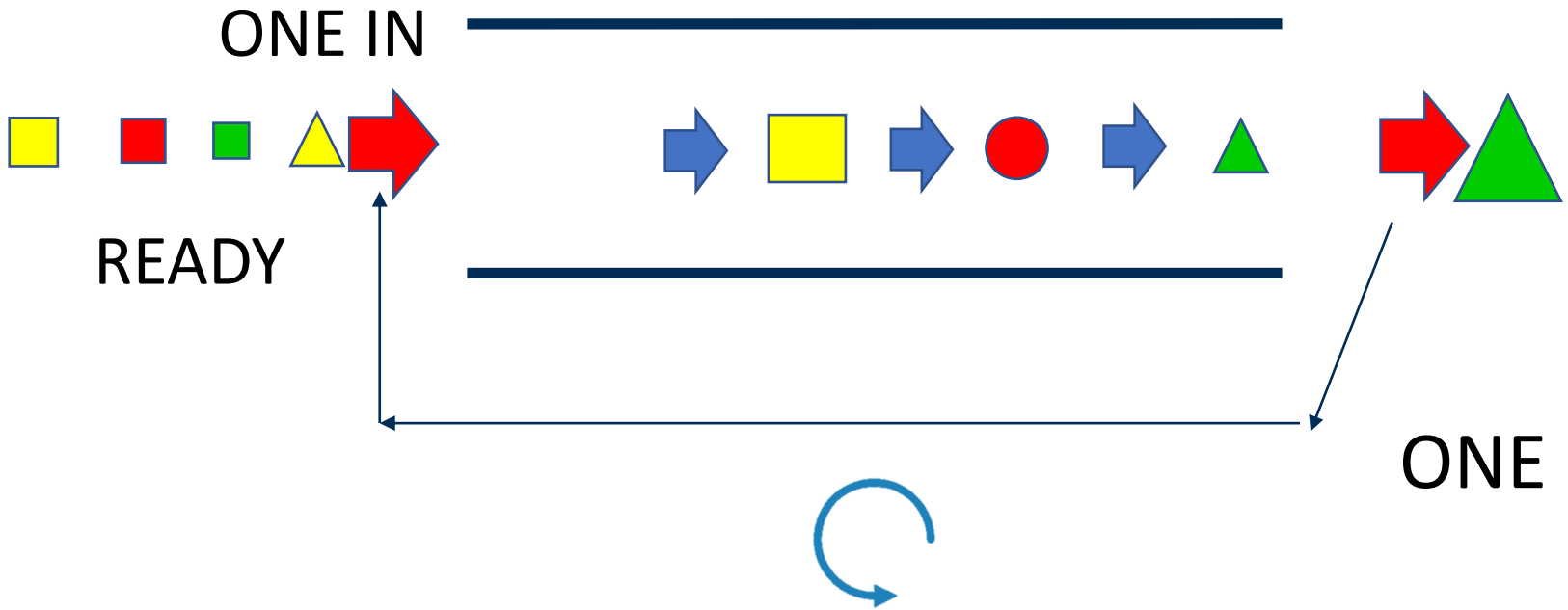


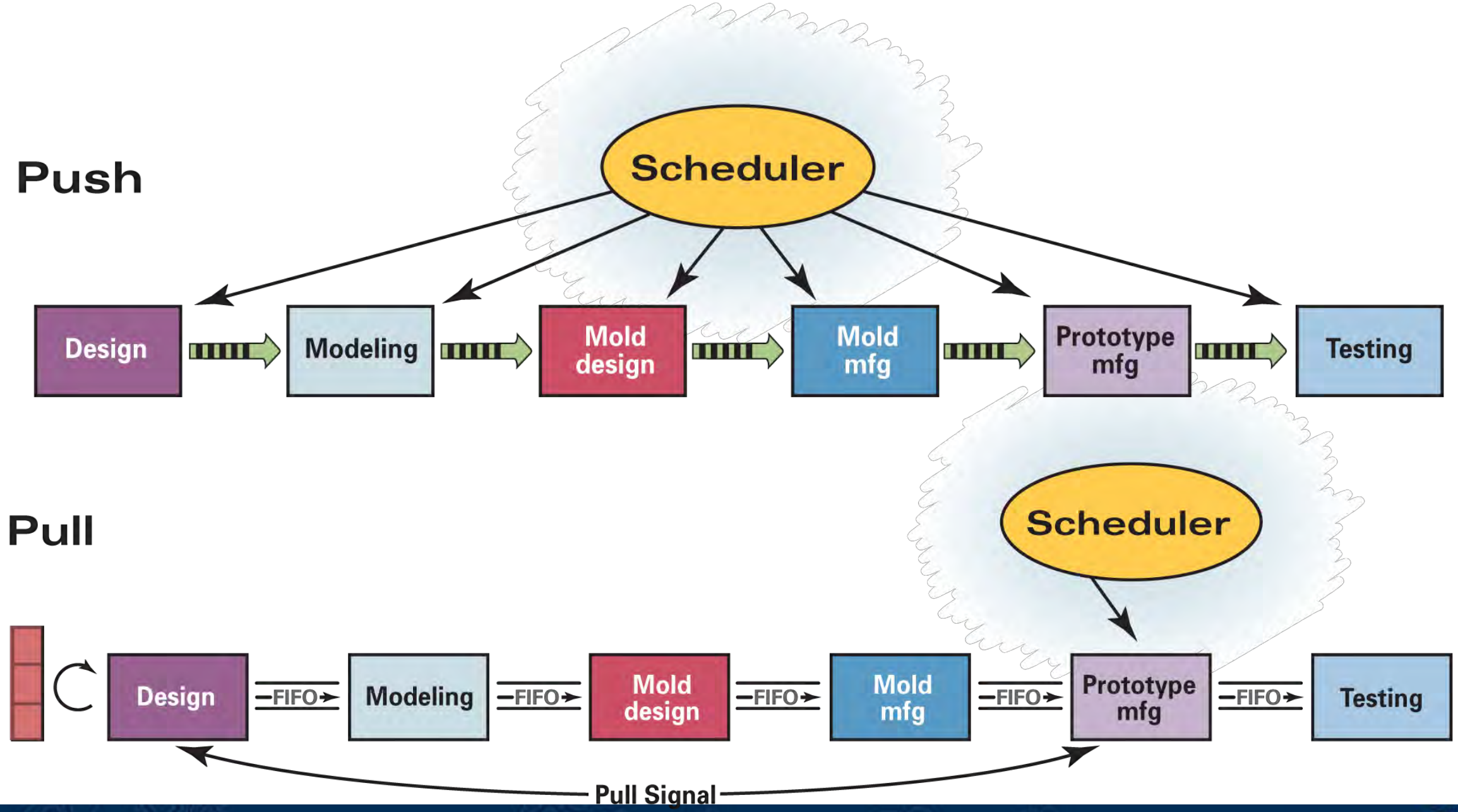
One In – One Out

Pull

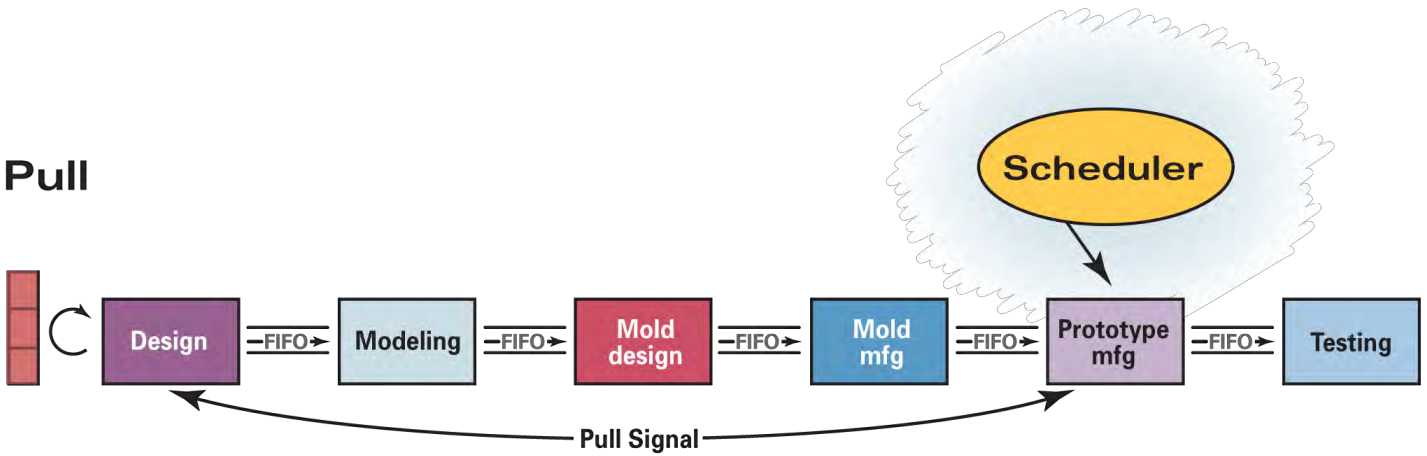
Virtual Queue





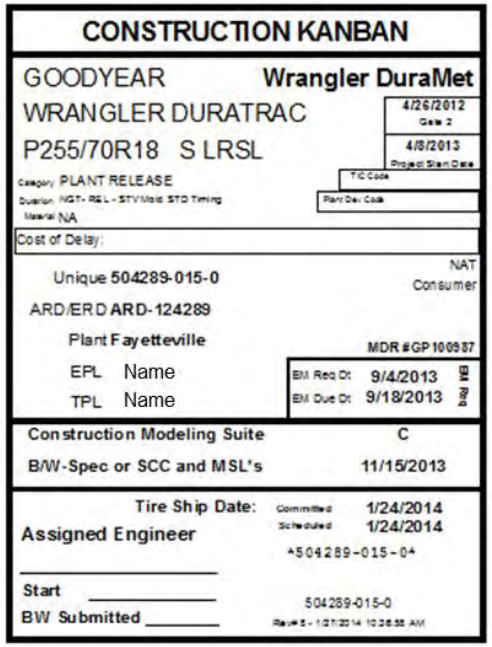


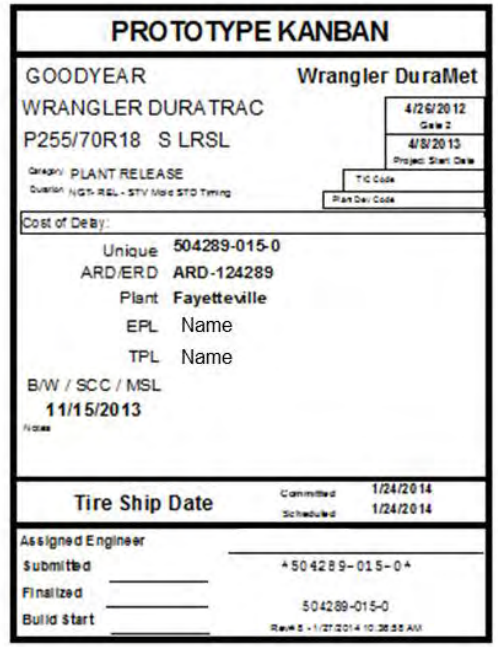
Pull

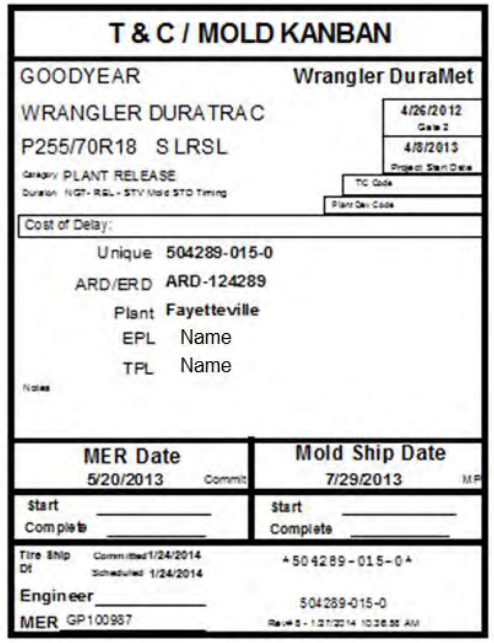


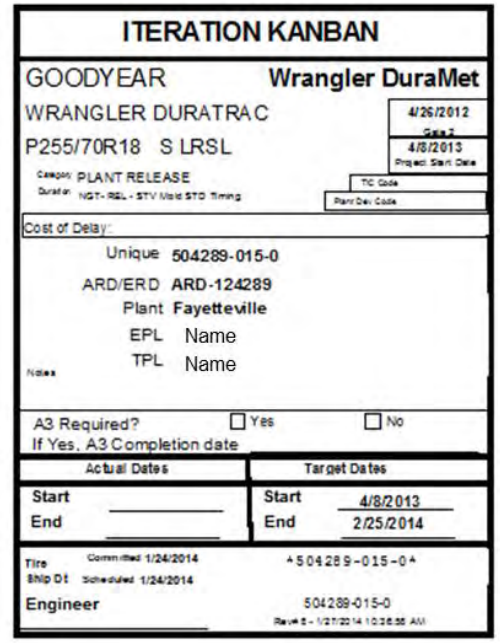
Self adjusting/aligning

Limits inventory / Work in progress

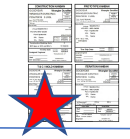




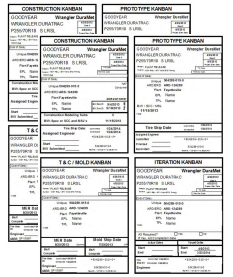




Work Visibility Board

		Amanda	James	Julie	Ihor
Overdue					
Due This Week					
Due Next Week					
Future					
Blocked					
NEEDS WORK					

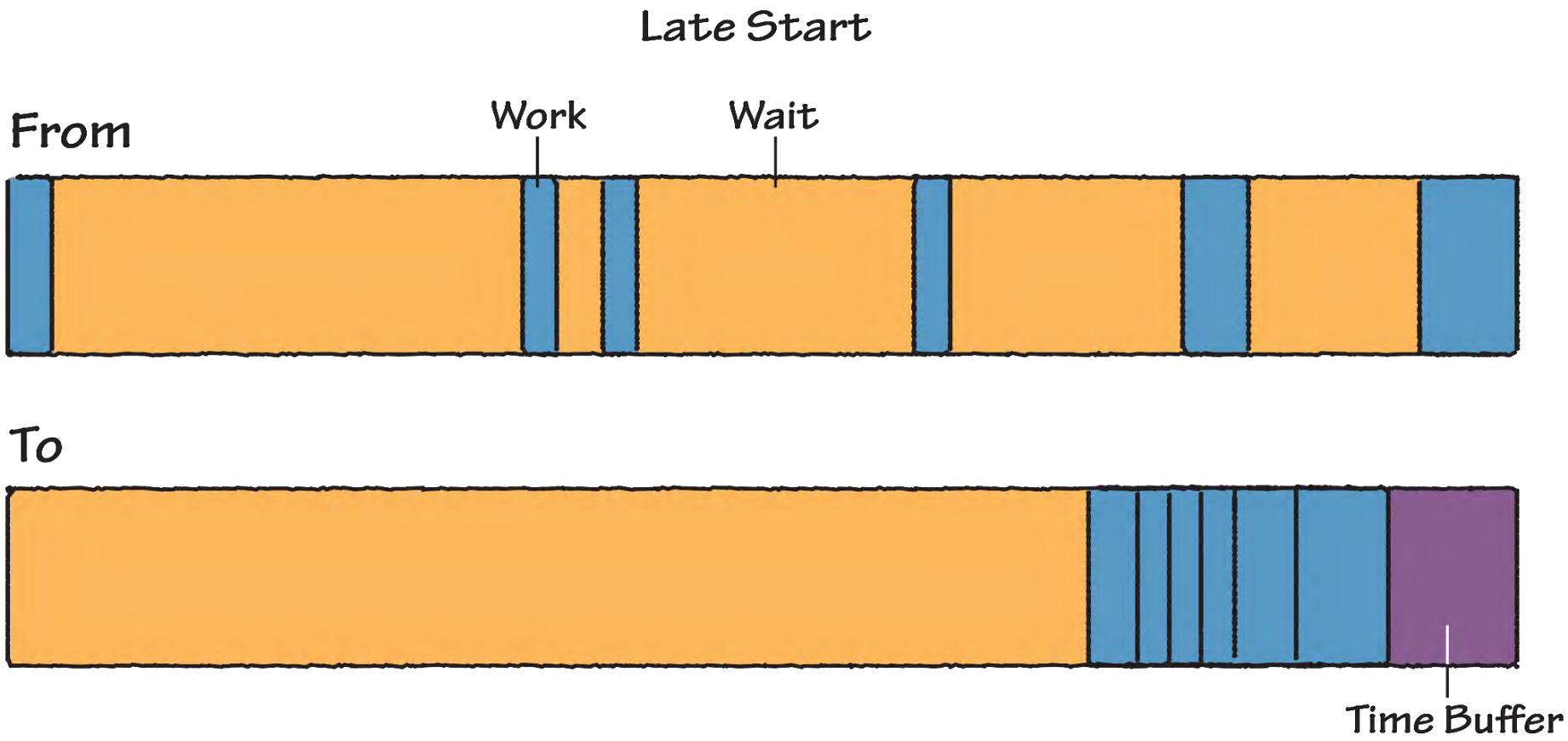
In Box



Fillers

★ Need Help

Late Start



Late Start

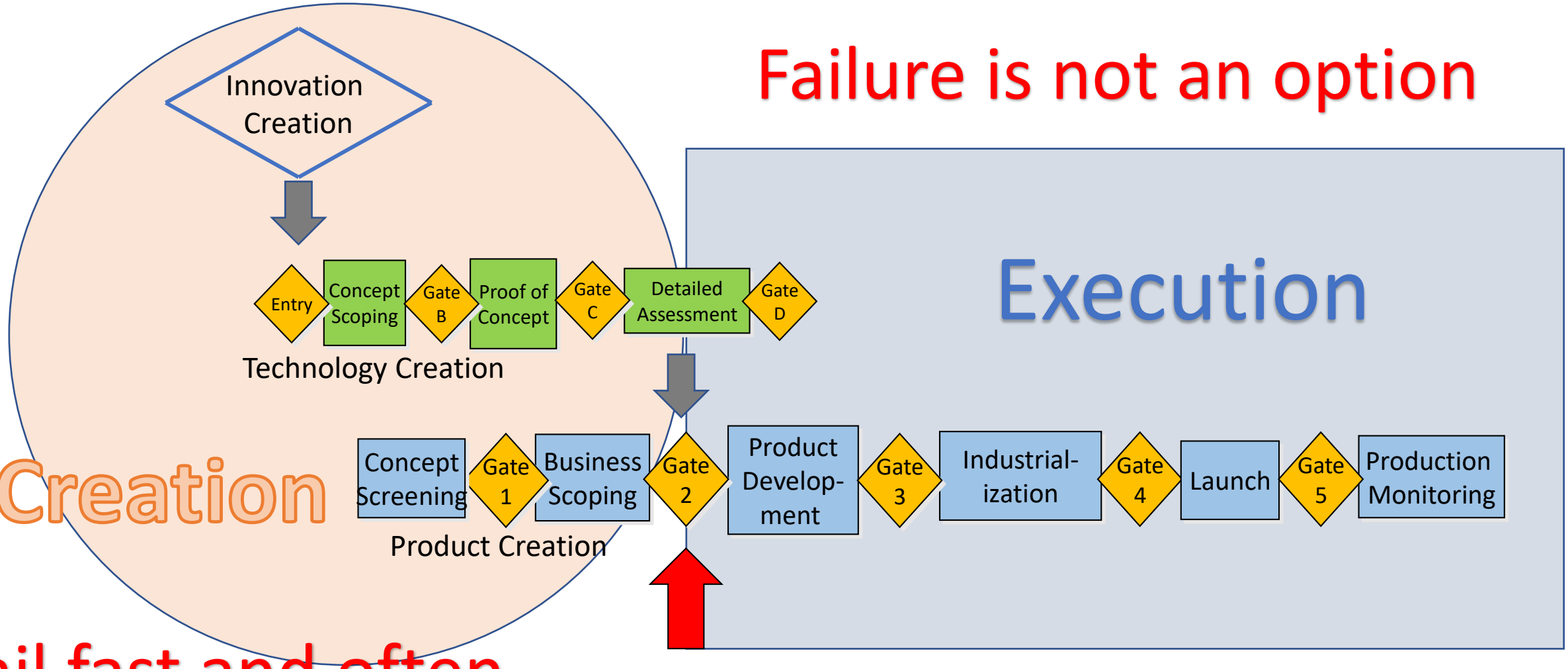
Every iteration is started as late as possible but with enough time to finish, including a small buffer to account for variability

- Latest possible decisions
- Deali
- Latest technology and opportunities

Last year a major customer changed the tire size of on important new vehicle!
Goodyear had not started the program
The Goodyear account manager noted that we saved $1/4 MM over our traditional development process, which was based on ordering hardware and building prototypes the day we found out about the program

Start late to finish on time.

Can Innovation Have a Process?

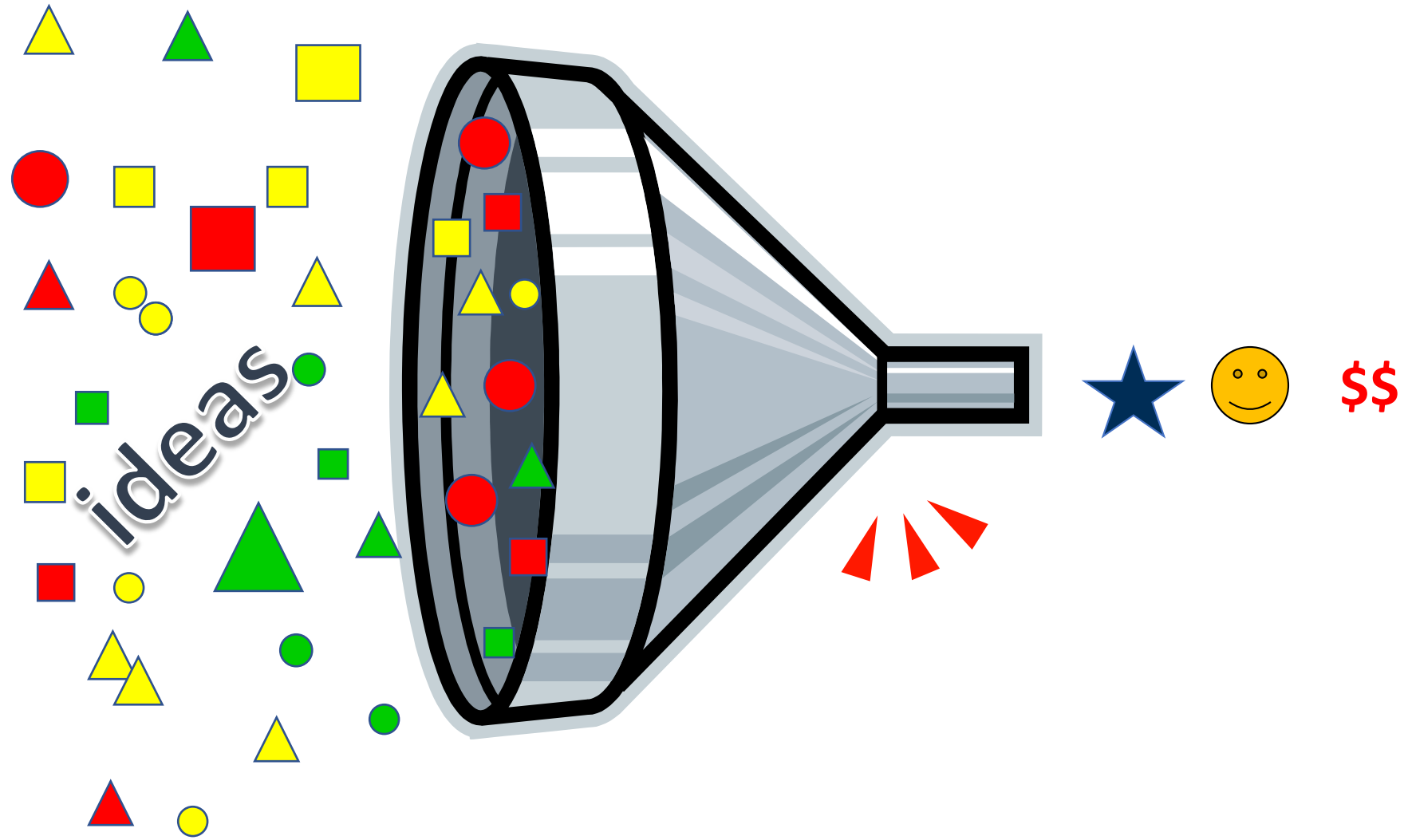


My Dream Process

The more you try, the luckier you get

H&M

Generating Ideas



The Reversed Funnel

CUSTOMER

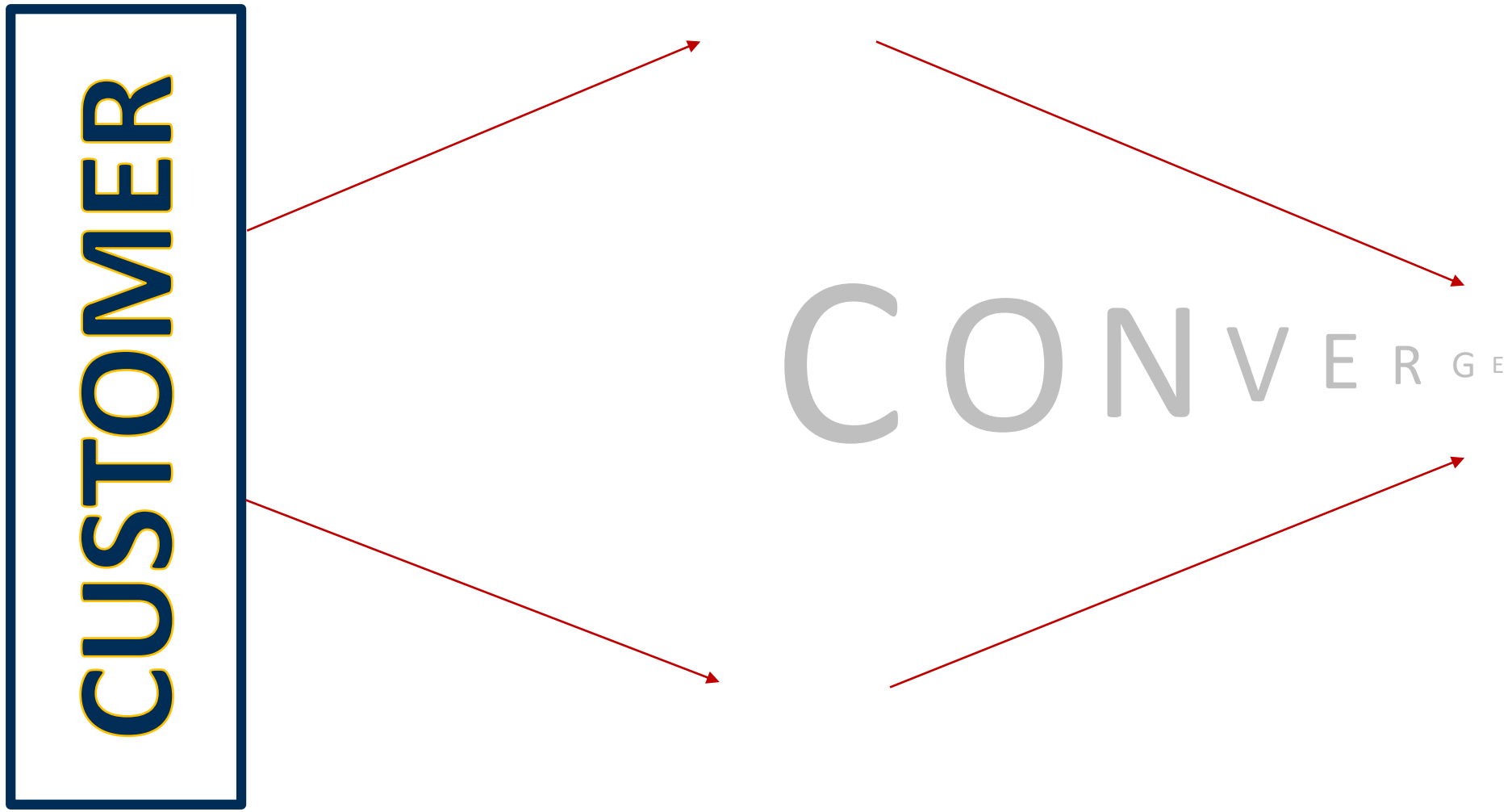
- Market Back
- Observe
- Listen
- FIND pain points

Engineers Must Become Observers

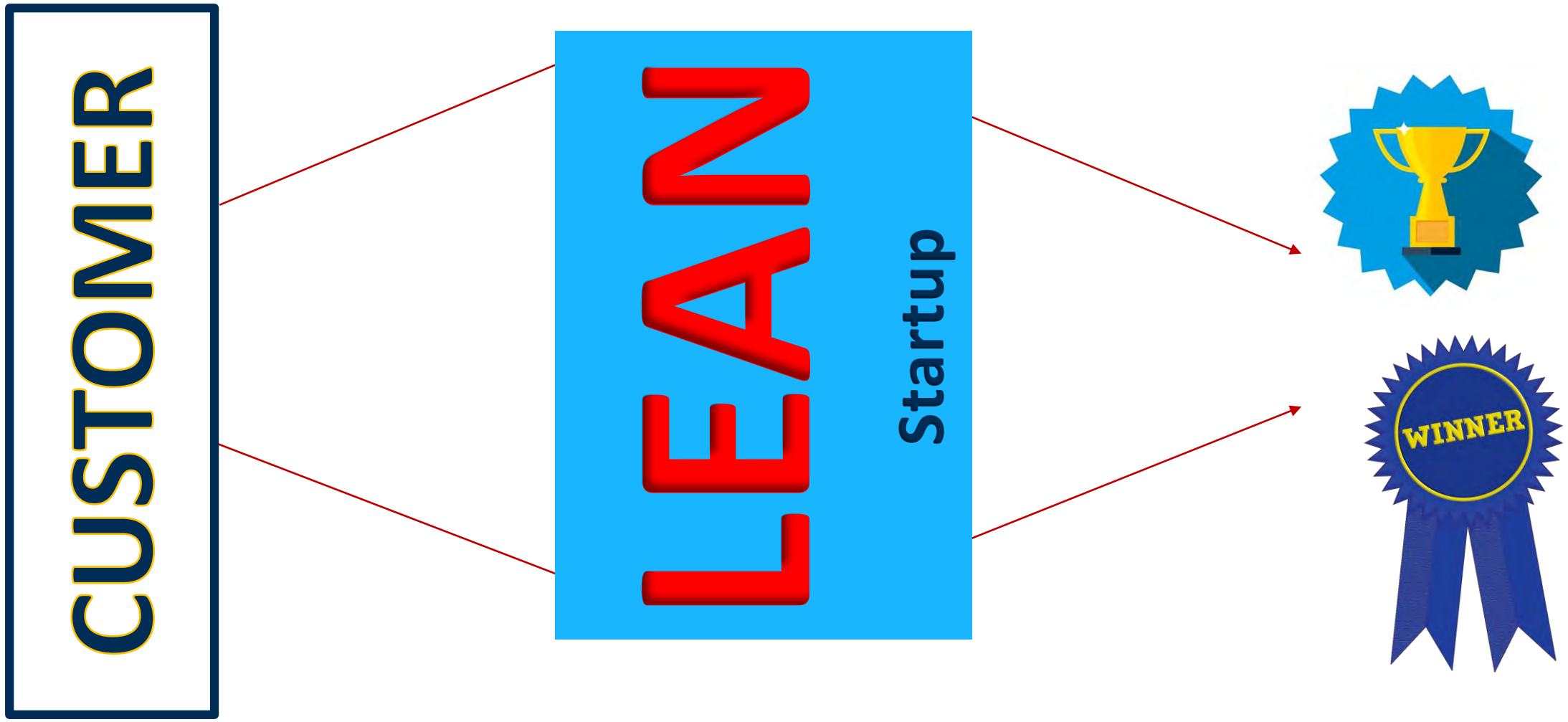
CUSTOMER

DIVERGE

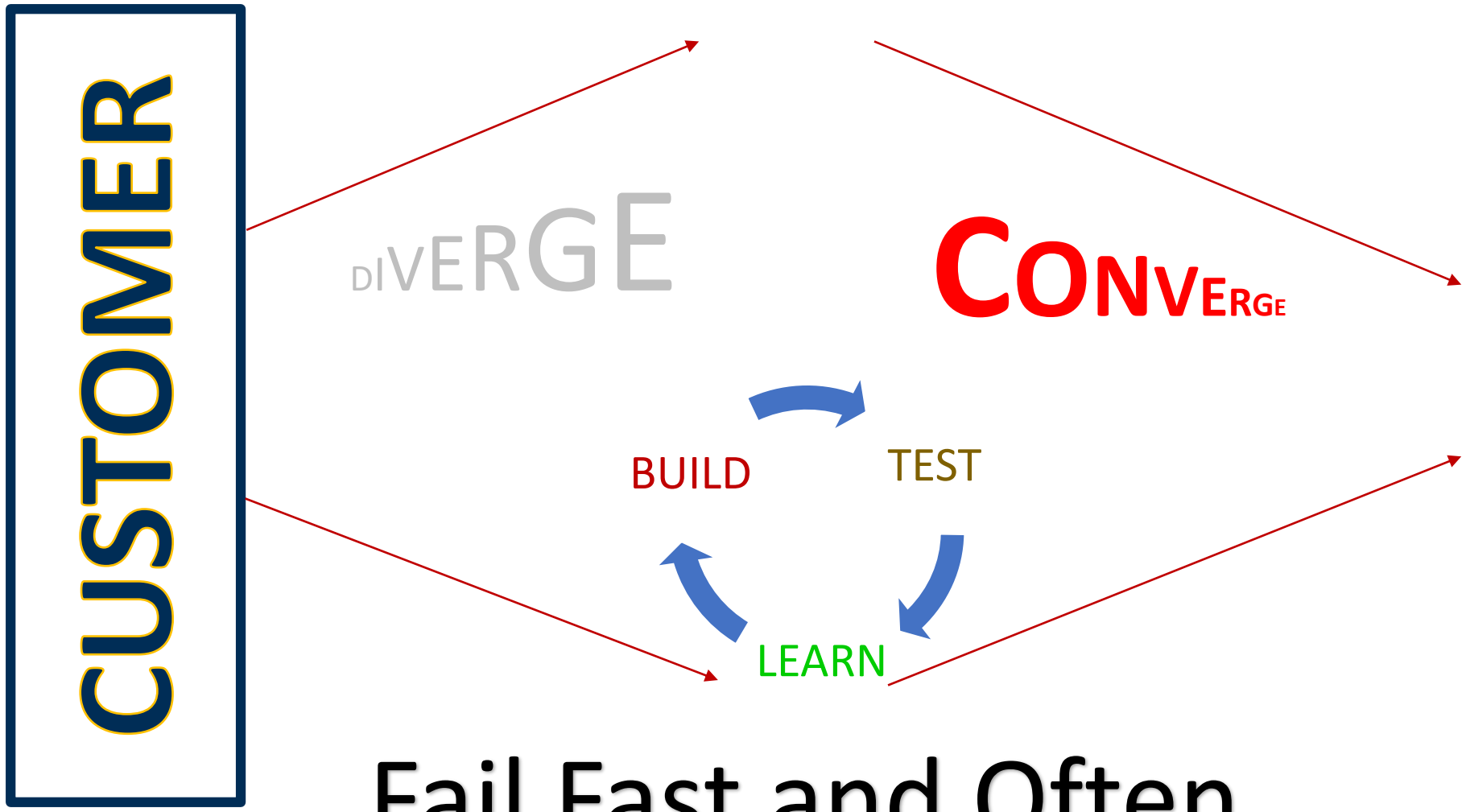
Sorting Out Ideas



Lean Innovation



Innovation Cycle

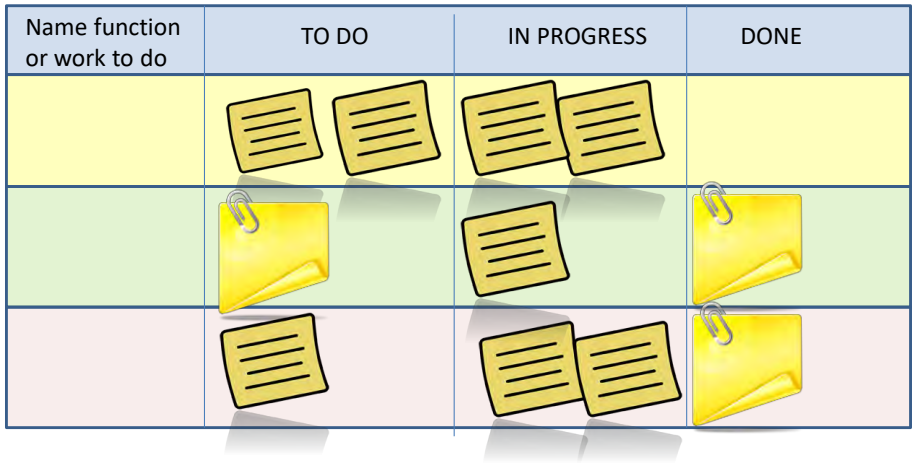


Fail Fast and Often

Quick Learning Cycles – SCRUM, Sprints, Agile …

Time Period

Goal, Deliverable ….



- Work in very small steps, FAST – often time limited steps
- Cross functionally from the beginning
- Retain flexibility through the process – launch or pivot at any time
- Use technology/world as our lab

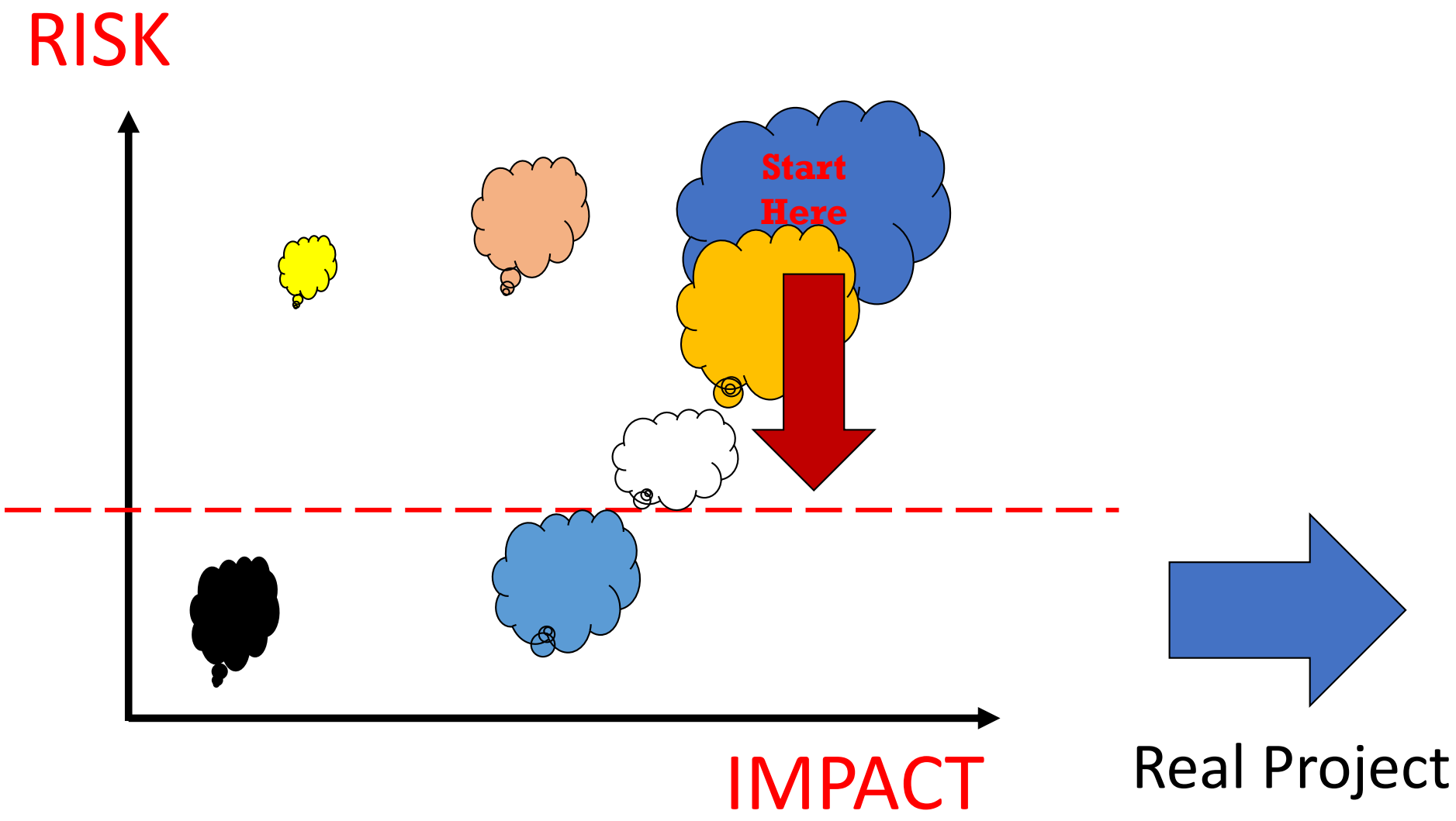
- And
  - In the right order
  - With the minimum effort

What are the Knowledge Gaps?

CRITICAL QUESTIONS

- Can we sell it?
- Can we make it?
- Is new technology needed?
- Will we get approval?
- Is it legal?
- Do we have the talent?
- Can we buy the technology?
- Etc ……

De-Risking an Idea



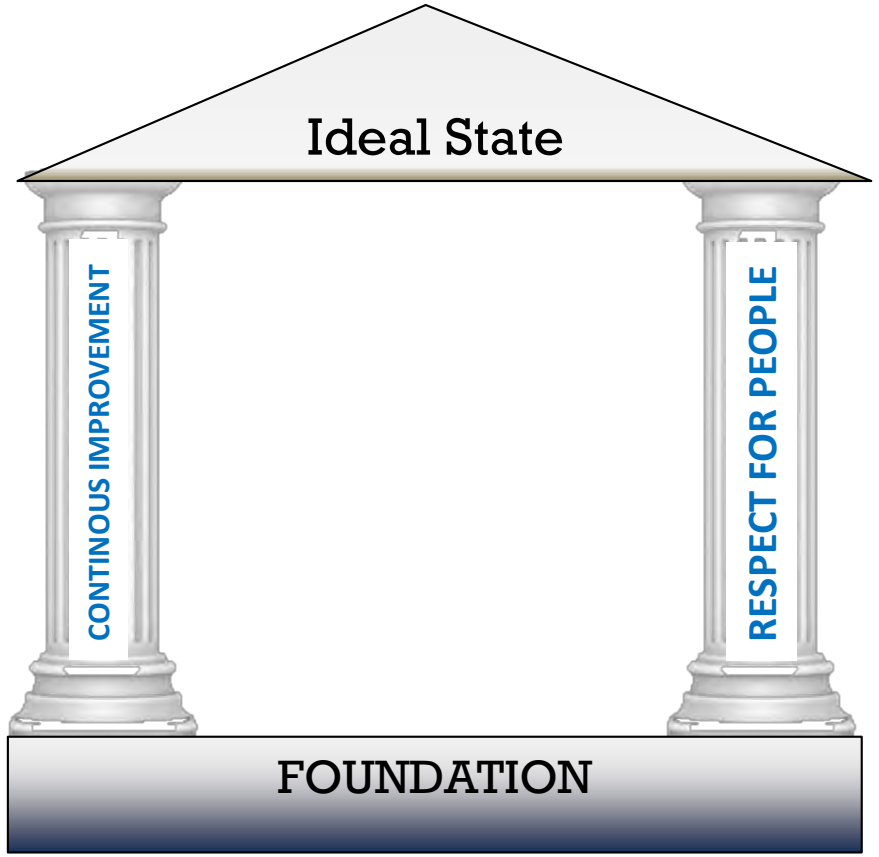
Lean Experimentation

Maximum Learning With Minimum Effort

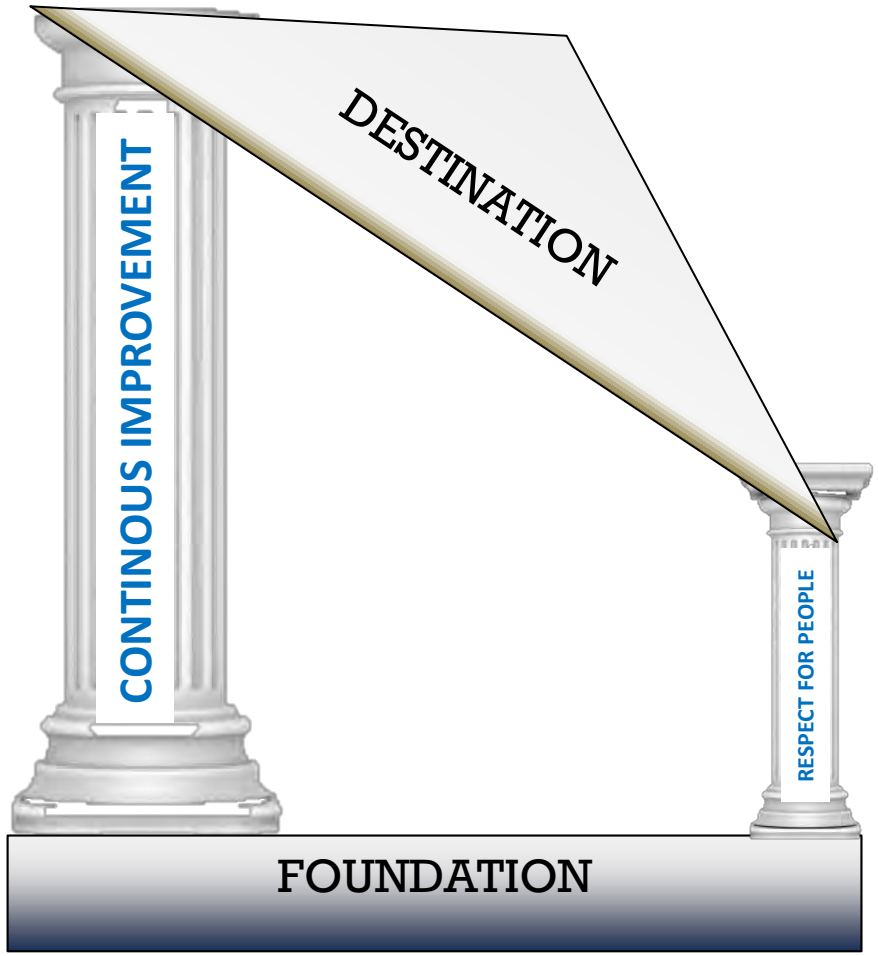
Experiment Example : Willingness to pay for a recycled tire

- **Assumption:** Consumers will pay a premium for a green tire (New Earth tire)
- **Design**: Project team dressed/trained as in-store sales associates, pitching consumers the new concept (Wizard of Oz)
- **Results:**
  - Consumers expected a discount (they saw recycling as a savings opportunity for Goodyear)
  - Consumers would not compromise on any traditional performance attributes to get recycling as an additional feature
- **Conclusion:** Project cancelled

(my) Desired State



Current State



Average of **70%** of people are not engaged*

*Jerry Solomon - Lean Frontiers conference, San Antonio 2016

Managing People

Engagement

Empowerment – Andon Cord

Respect for people

Upside Down Leadership

Who is the best positioned to make recommendations about changing the work people do?

It is easier to teach the process experts the lean principles than it is to teach an outsider the process and the culture

Engagement and Empowerment

Who is the best positioned to make SUGGESTIONS (for decisions)?

Who are the technical experts?

Managers have the right to know – not to tell

Respect

- People come to work to do a good job
- If they cannot, look at process, training, qualification, equipment …
- Help the people be successful (ALL)
- People deserve a safe work environment
- Remove waste from their work
- Ask questions, do not give answers
- Learn to manage the round peg in the square hole – (google)

Hard on the Process, Easy on the People

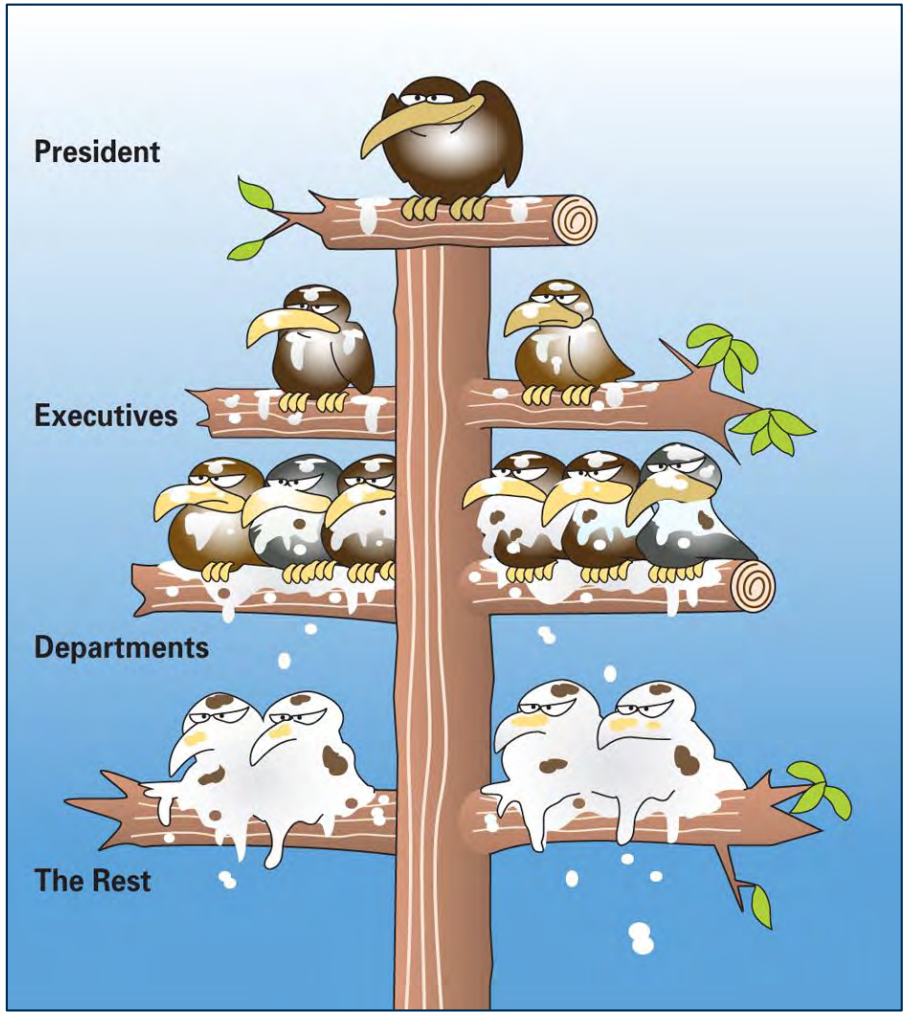
Upside Down Leadership

Billy Taylor, Director NAT Manufacturing

Ellis Jones, Plant Manager Akron

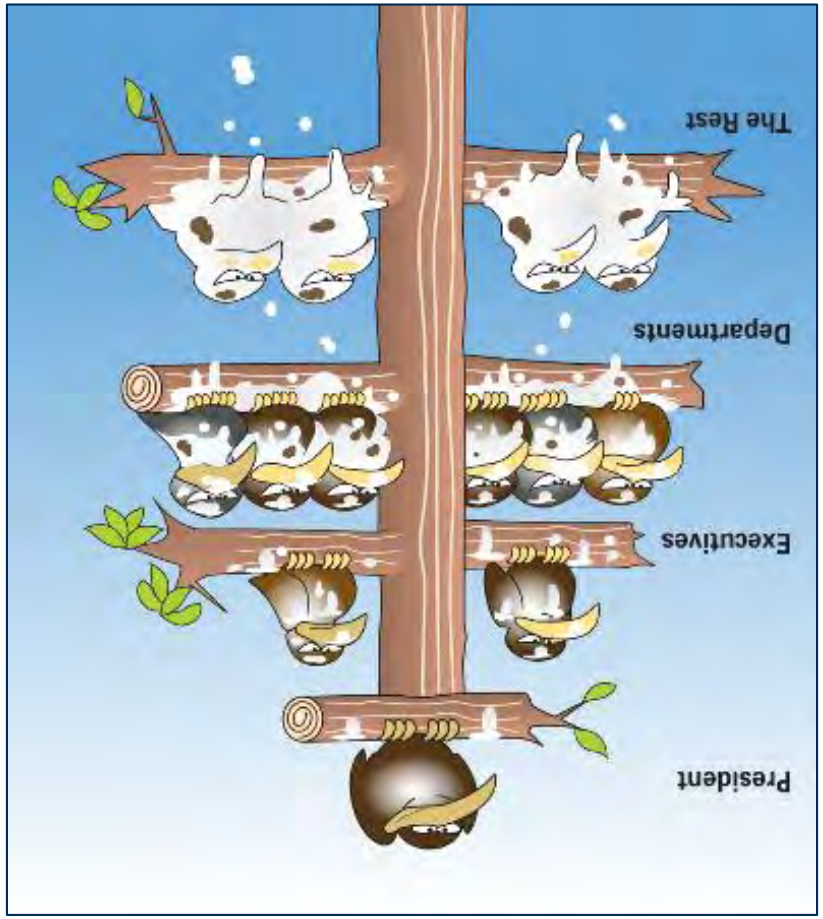
Best NASCAR tire builders in the world

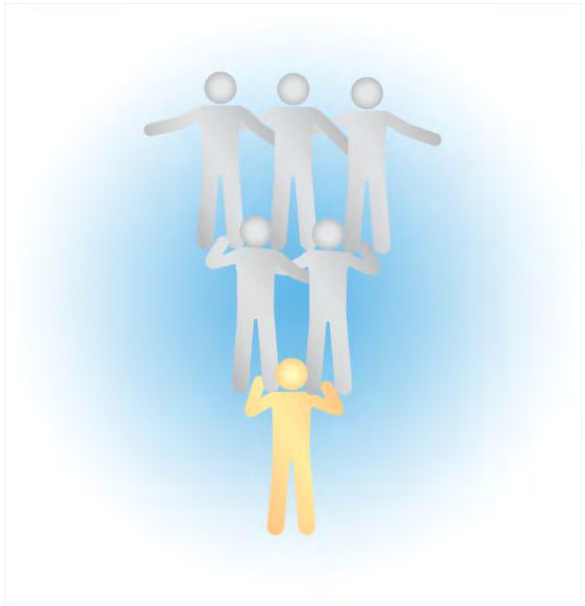
Leadership



*Inspired by unattributed graph

Lean Leadership





Role of the Leader/Sponsor

- Leader has the right to know – not to tell
- Go see (facts over data)
- Engage associates, coach, sponsor ….
- Insist on root cause, PDCA ..
- Hold people accountable
- Speak “native” language to help people be successful
- Lead without using authority

Jean-Claude Kihn
Goodyear CTO and President

Summary

With the right mindset, (and if done right) lean thinking can do at least as much for an innovation creating organization than it can do in manufacturing and services

It takes some pre-requisites

There are 2 processes

But maybe the most important is the managing of the PEOPLE

Thanks

If everything seems under Control,
You're just not going fast enough.

Mario Andretti

www.norbertmajerus.com

norbert.majerus@gmail.com

+1 (330) 801 3184

www.interfacing.com

sales@interfacing.com

+1 (800) 561 5005