

JOEJUSTICE

MORALE MAXIMIZES

VELOCITY



AGILE BUSINESS INSTITUTE

EXECUTIVE LED

AGILE AND

DIGITAL

TRANSFORMATION



Harvard Business Review: <http://hbr.org/product/team-wikispeed-developing-hardware-the-software-way/an/ES1391-PDF-ENG>



AGILE HARDWARE

HOW TESLA RELEASES HARDWARE
MULTIPLE TIMES A WEEK

Forbes

CNN Money
FORTUNE

Forbes: <http://www.forbes.com/sites/stevedenning/2012/05/10/wikispeed-how-a-100-mpg-car-was-developed-in-3-months/>
Forbes: <http://www.forbes.com/sites/stevedenning/2012/08/01/transformational-leadership-in-agile-manufacturing-wikispeed/>
Forbes: <http://www.forbes.com/sites/stevedenning/2012/08/02/can-established-manufacturers-transition-to-agile/>
Forbes: <http://www.forbes.com/sites/stevedenning/2012/09/24/how-manufacturing-can-learn-from-software-to-become-agile>
CNN Money Fortune <https://fortune.com/2012/06/18/how-companies-ought-to-train-their-staffers/>





2006

- Started building cars with agile methods



@JoeJustice0



2012

- Issue #3, cover





2020

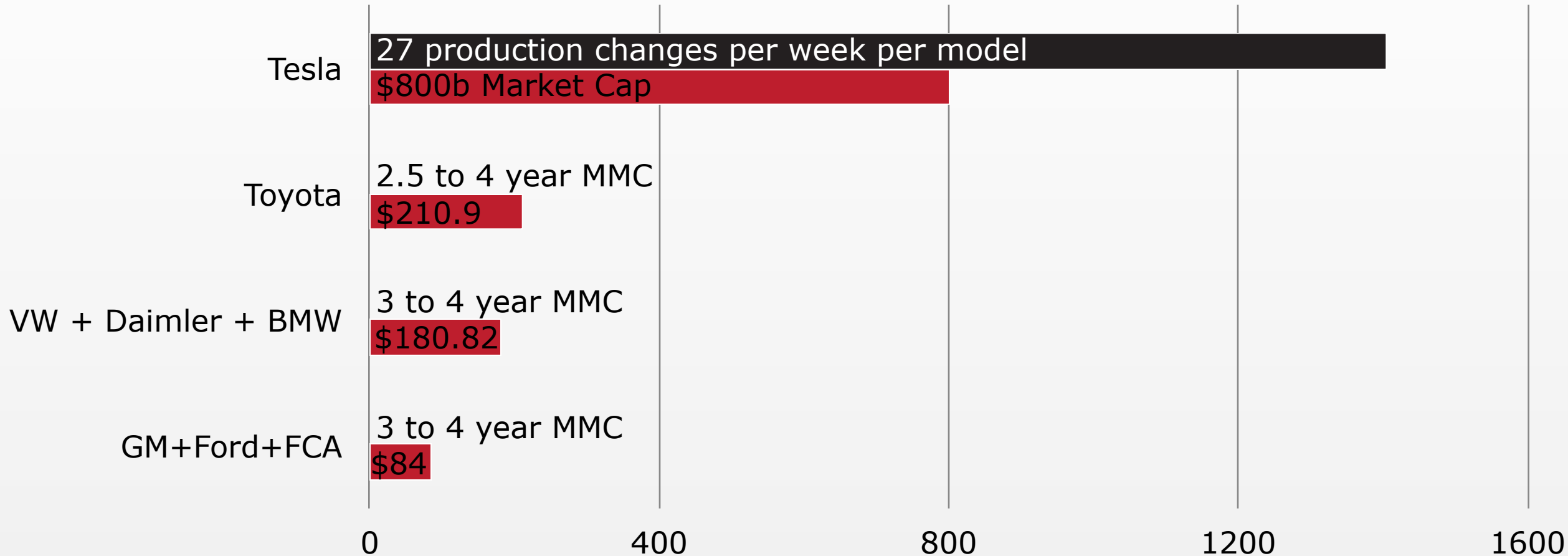
- Joined Tesla
- Operated Agile@Tesla



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Fast New Product Development

Automotive Companies Market Capitalization by speed of NPD + NPI



• Source: <https://tesla-info.com/blog/tesla-model-history.php>

• Source: <https://www.businessinsider.com/tesla-model-s-every-major-change-2019-8#tesla-bumped-up-the-performance-times-it-quotes-for-the-car-in-2017-6>

• Source finance.yahoo.com

Agile Executives



Volkmar Denner
CEO Robert Bosch GmbH

“For Bosch agility is crucial, it allows us to adjust to the increasing speed of change around us. Agility allows us to remain in a position as an innovation leader.”



Akio Toyoda
CEO Toyota Motor Company

“When you look at a product, going to the actual sites, going to genba, what is important is to fuel the change point.”



Herbert Dies
CEO Volkswagen Group

“The big questions is: Are we fast enough? If we continue at our current speed, it is going to be very tough.”



Elon Musk
CEO Tesla

“Pace of innovation is all that matters in the long run”

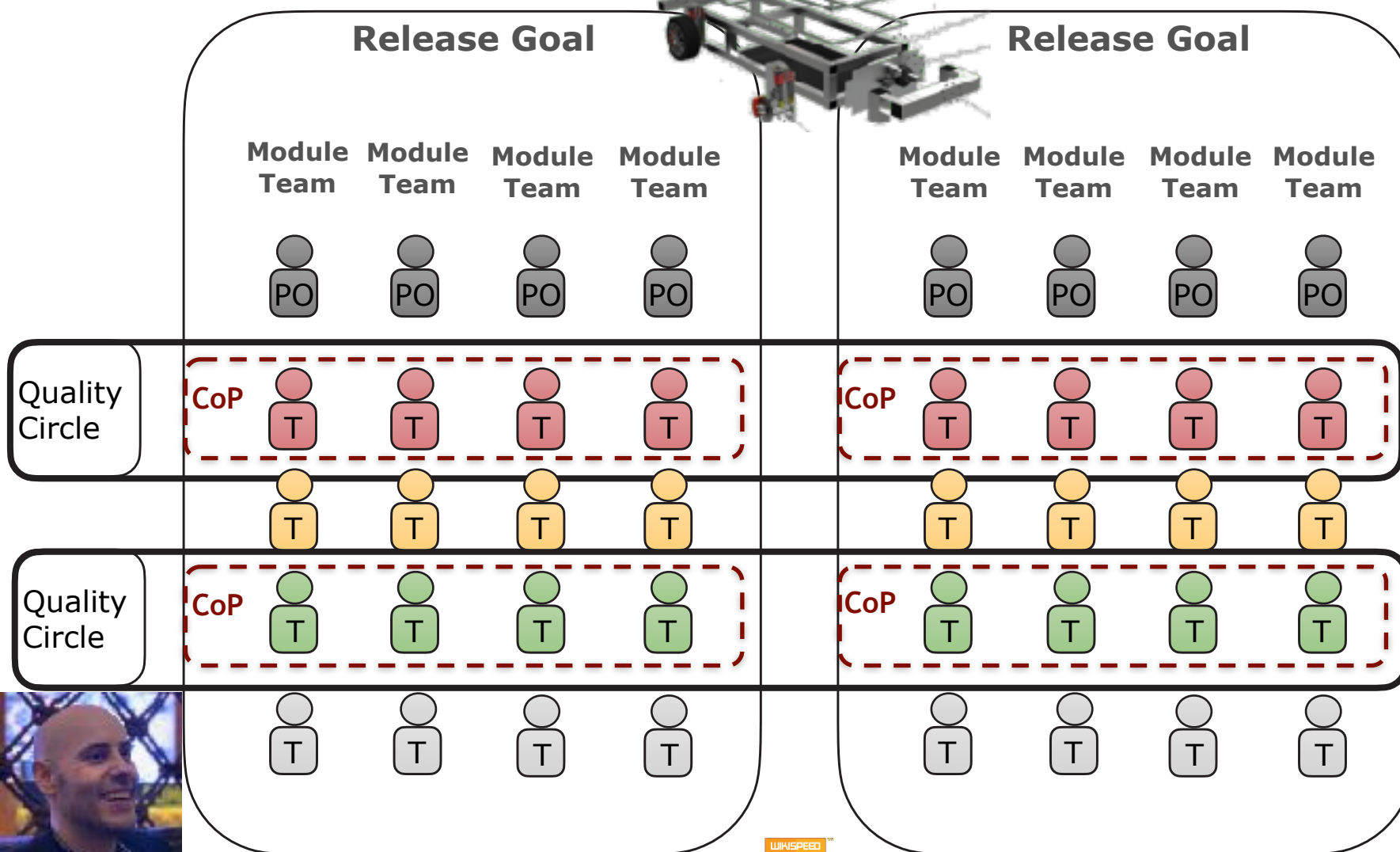


“How Much of This Can We Do In Parallel?”

- Joe Justice worked directly with Bill Gates in 2008 and 2010



Group Scrum



Henrik Kniberg, Spotify Model



Paul Takken, Tribes & Guilds at ING Bank



Joe Justice, WIKISPEED Model



Justice's Law

"The modules of the system define the structure of the organization." -Joe Justice

"The modules of the product define the structure of the company." -Joe Justice 2006

Joe@ABI.group

@JoeJustice

Keynotes

Certified Scrum Master

Certified Product Owner

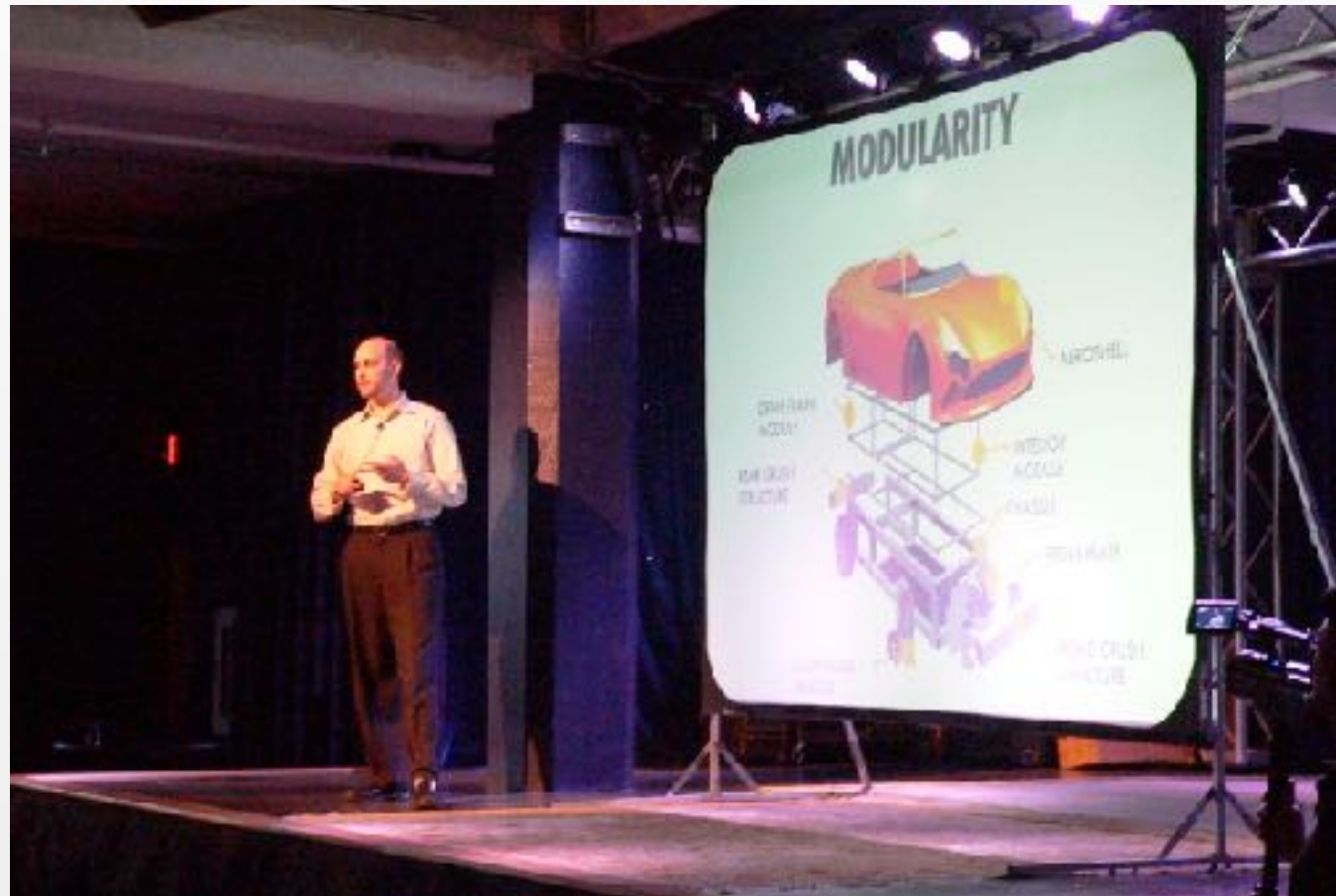
Group Scrum

Agile Hardware Seminars

Leadership Workshops

Transformation Consulting

Remote Coaching



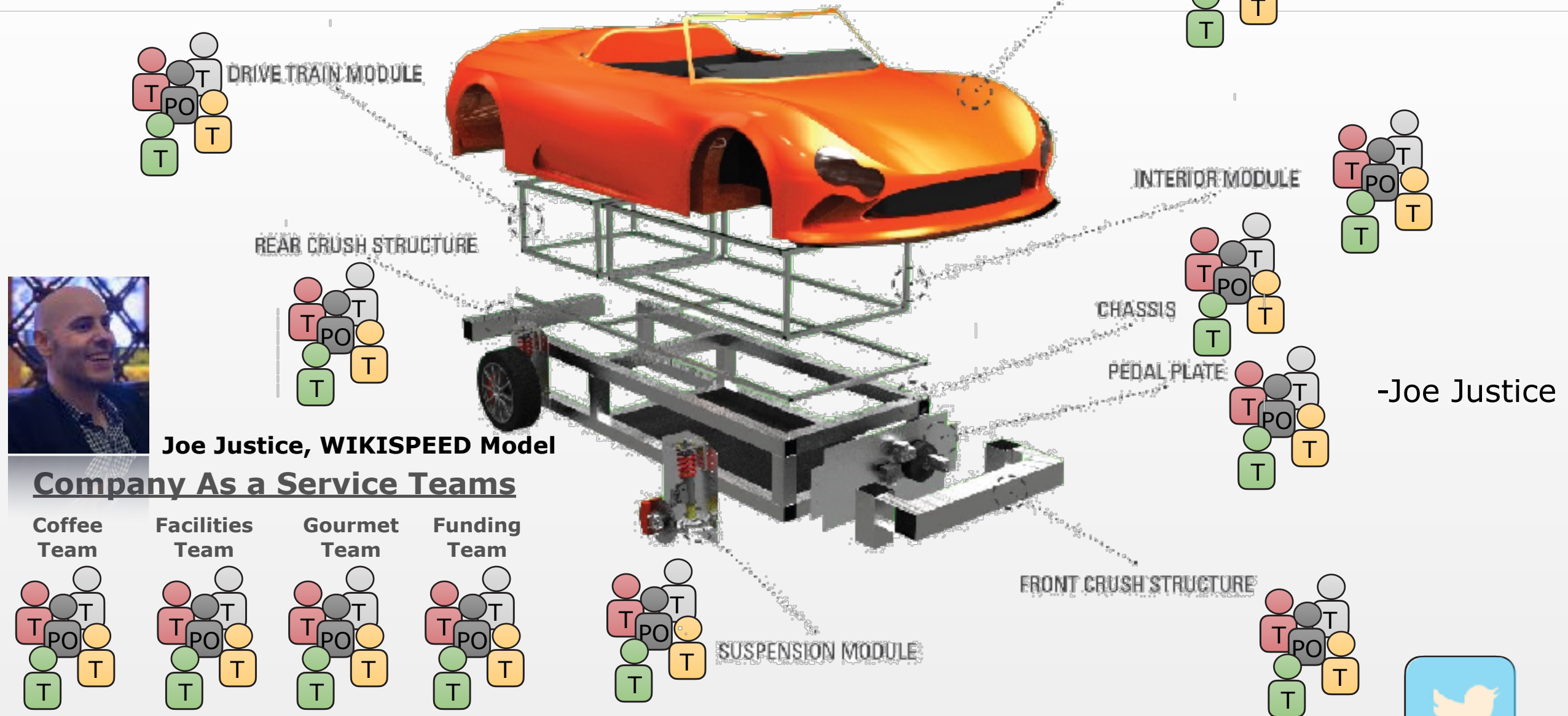


“Never have a meeting where two pizzas couldn't feed the entire group.”

- Joe Justice consulted to Amazon leadership in 2016



GROUP SCRUM: Module Teams



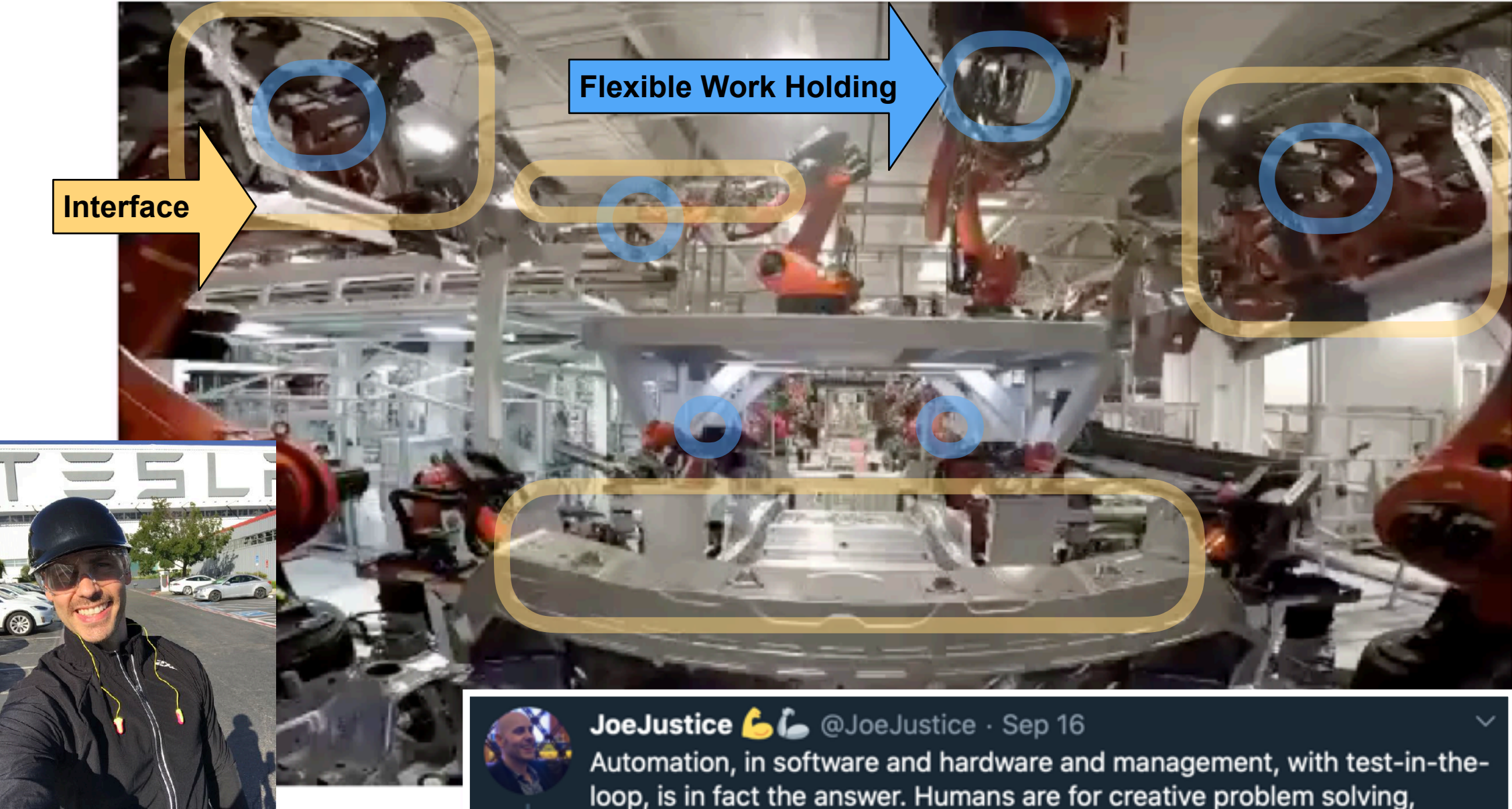


“If something is physically possible, not only is someone doing it, but there is also an award show.”

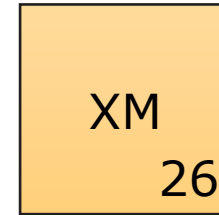
- Joe Justice operated Agile@Tesla in 2020
- Any product goal less than what is physically possible is vulnerable to competition.



Stable Interfaces **Area 51: Design at Production** Flexible Hands



Source: Joe Justice, Tesla



eXtreme Manufacturing

How to fit hardware development
into shorter and shorter sprints



Source: Paolo Sammicelli and Joe Justice

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Peter Stevens Retweeted your Tweet

Exchanging flexibility for predictability? Have the best of both with Known Stable Interfaces. saat-network.ch/events/executi... join @Peterstev and I to accomplish it with you. pic.twitter.com/nc5LzAK8x8

Tesla Modular XY Construction

Active / Active modules

(Inset Tesla Modular Z Construction)







Tesla Modular Z construction

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AGILE BUSINESS INSTITUTE





1 Inspiring Team Name

Release Goal: <Please leave blank for now>

NOT
READY

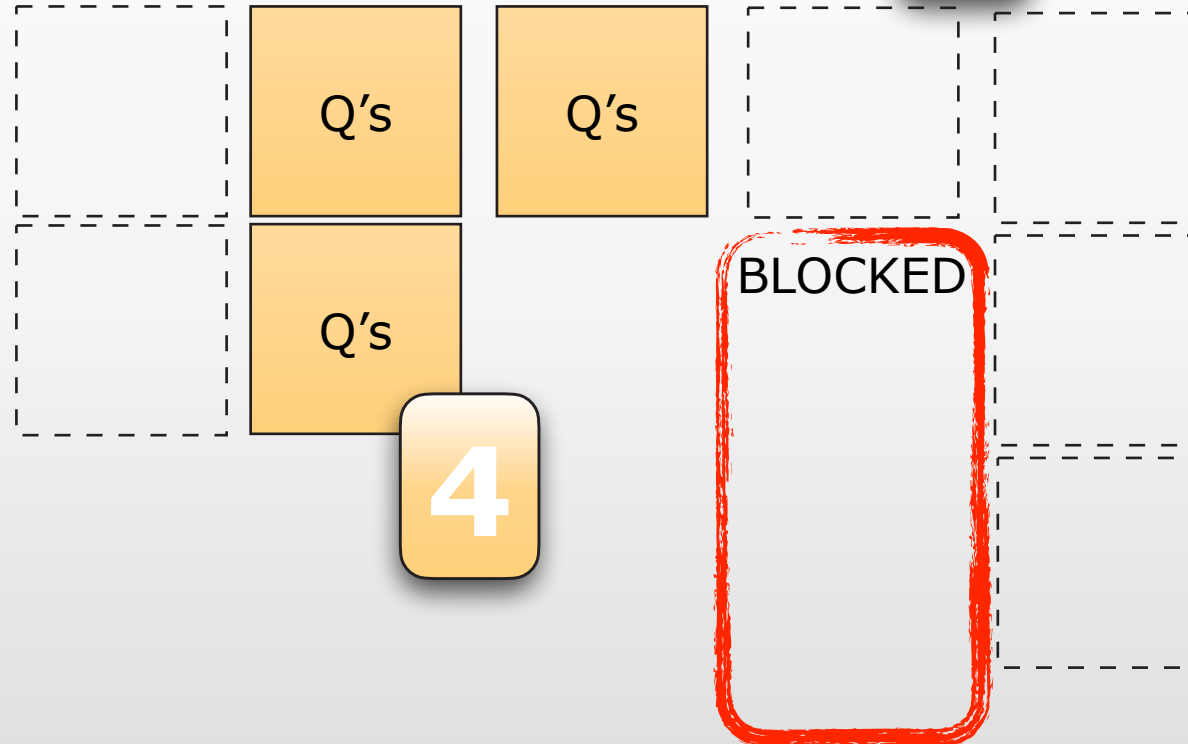
PRODUCT
BACKLOG

SPRINT
BACKLOG

DOING

DONE

3



4

PO

Name

2

DEVELOPMENT TEAM

Name

Name

Name

SM

Name



GROUP SCRUM BOARD

TEAM NAME	SPRINT 1 PASSED/TESTED/WIP	SPRINT 2 PASSED/TESTED/WIP	SPRINT 3 PASSED/TESTED/WIP	SPRINT 4	SPRINT 5	SPRINT 6	SPRINT 7
TEAM 1 NAME	(\$spend + \$make) /velocity (¥使う+¥作る) /速度						
TEAM 2 NAME							
TEAM 3 NAME							
...							

Large projects employ more than one Scrum Team.
Each team uses a row on the group scrum board.

大規模なプロジェクトでは、複数のスクラムチームを採用します。
 各チームはグループのスクラムボードに一行を使用しています。



Scrum Masters Scrum of Scrums

**How can we improve our process?
Flow?**

Reduce cycle time?

Eliminate waste?

e.g. Team sitting at test location?

プロセスをどのように改善できますか?

フロー?

サイクルタイムを短縮しますか?

無駄を削減しますか?

How can we improve our quality?

Teamwork?

Pairing?

Swarming?

Technical excellence

**e.g. Automating test during
design (CAD)**



GROUP SCRUM

Development Team Daily Scrum

どうすれば品質を改善できますか?

チームワーク?

ペアリング?

増員する?

優れた技術?

Product Owners Meta Scrum

**How can we improve
our product?**

Value/Performance?

Less Complexity?

Reliably test?

Easier to test?

Less failure?

**e.g. Design for
Manufacture**

どうすれば製品を改善できますか?

バリュー?

パフォーマンス?

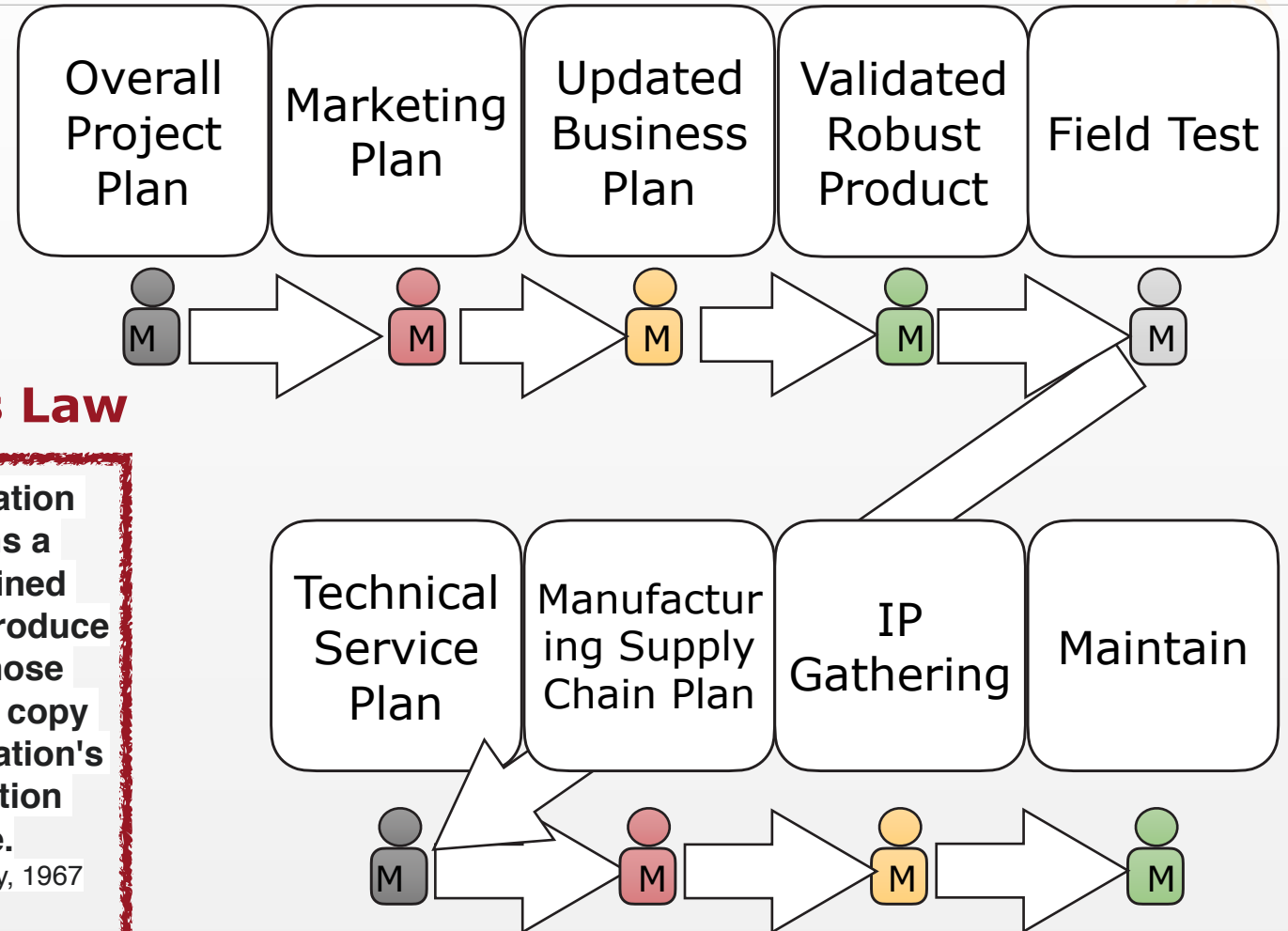
Phase Teams



Conway's Law

Any organization that designs a system (defined broadly) will produce a design whose structure is a copy of the organization's communication structure.

— Melvin E. Conway, 1967

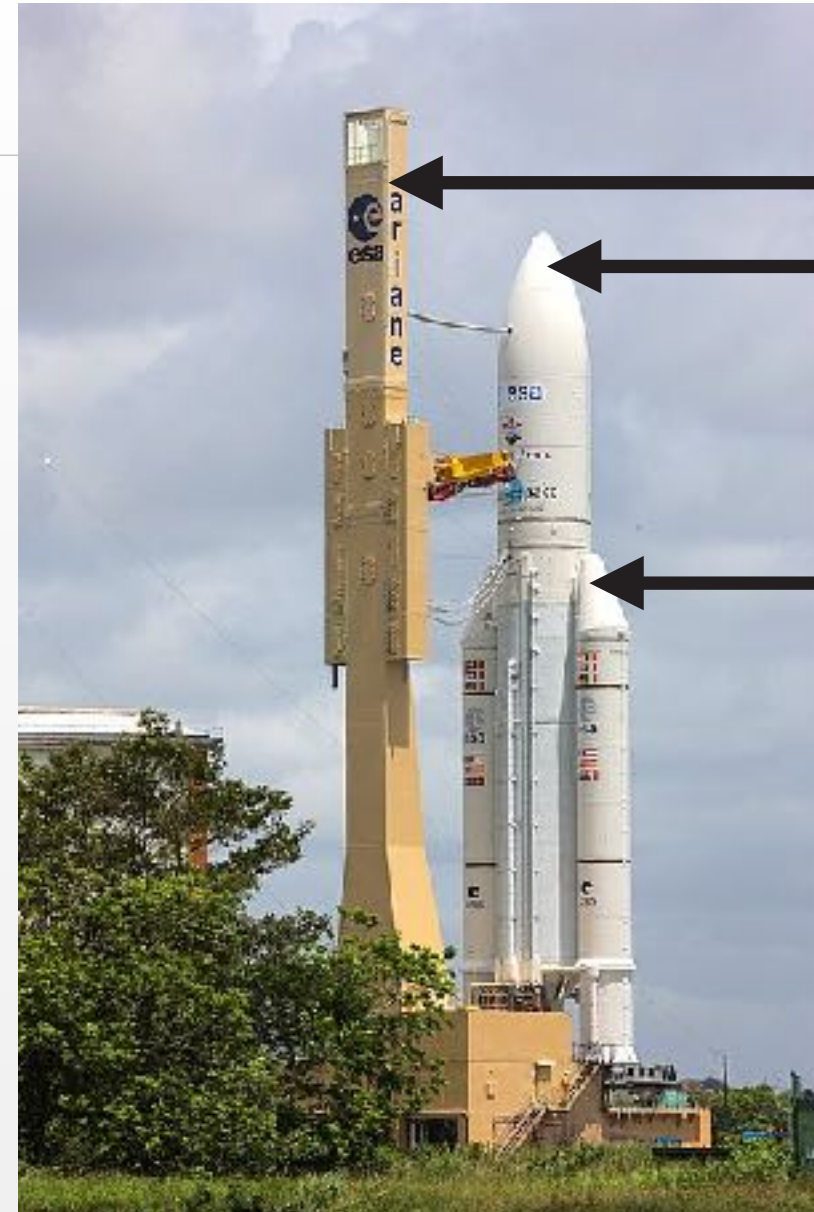




Conway's Law

Any organization that designs a system (defined broadly) will produce a design whose structure is a copy of the organization's communication structure.

— Melvin E. Conway, 1967



You can tell there are a bunch of organizations working alone and not talking:

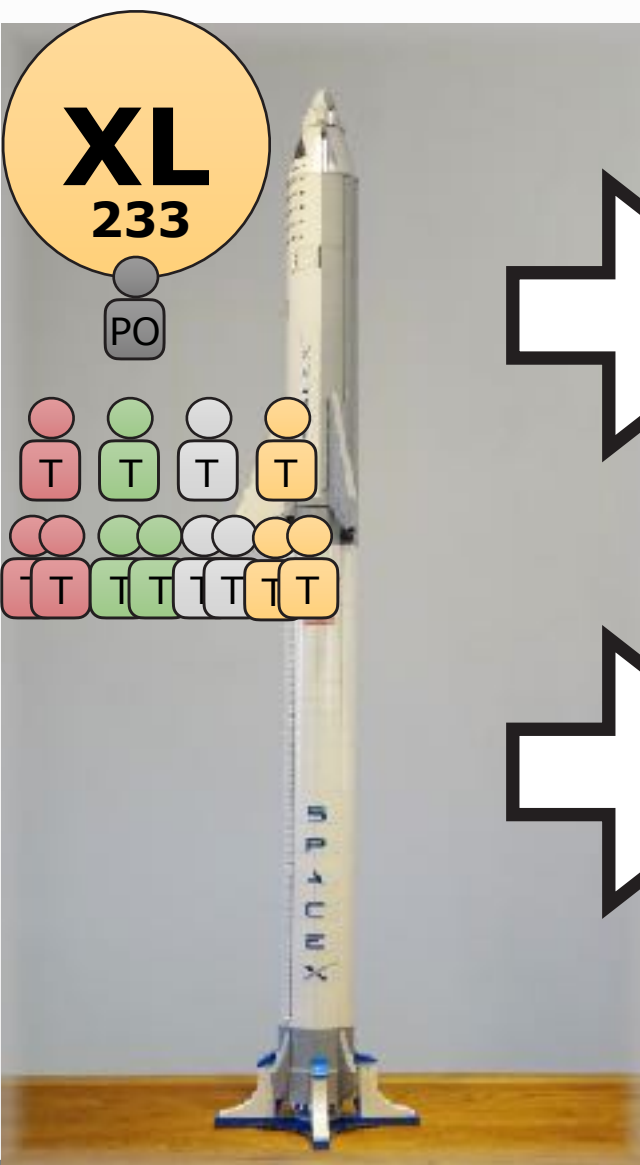
Ariane 5 Development cost €1+ billion.

Expensive to develop, maintain and integrate systems.

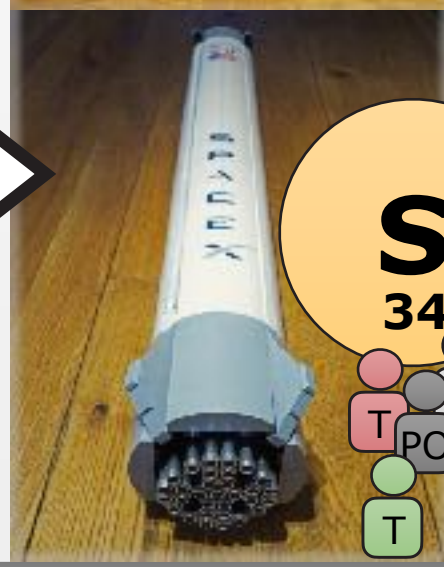
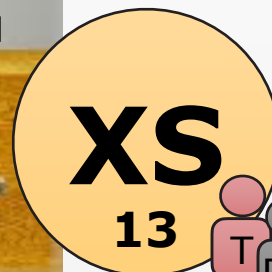
Produced by contract suppliers not grouped by interface.



Split Large Projects into independent small projects



+



+



Object Oriented Architecture is an agile risk reduction strategy

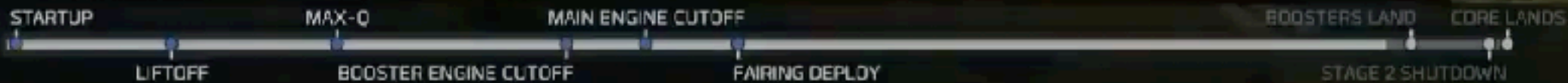
Optimum project size increases as team technical excellence and automation improve.



T+ 00:08:01	
STAGE 2	TELEMETRY
SPEED	ALTITUDE
 23115 km/h	 178 km



FALCON HEAVY TEST FLIGHT



SPACEX

<https://www.youtube.com/watch?v=I5I8jaMsHYk>

RISK MANAGEMENT

Standish Group 1985-Present

Small agile projects are the most successful.

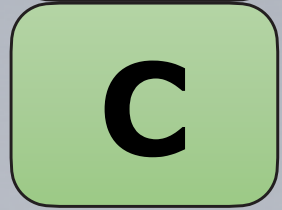
SIZE	METHOD	SUCCESSFUL	CHALLENGED	FAILED
All Size Projects	Agile	39%	52%	9%
	Waterfall	11%	60%	29%
Large Size Projects	Agile	18%	59%	23%
	Waterfall	3%	55%	42%
Medium Size Projects	Agile	27%	62%	11%
	Waterfall	7%	68%	25%
Small Size Projects	Agile	58%	38%	4%
	Waterfall	44%	45%	11%



Project A



Project B

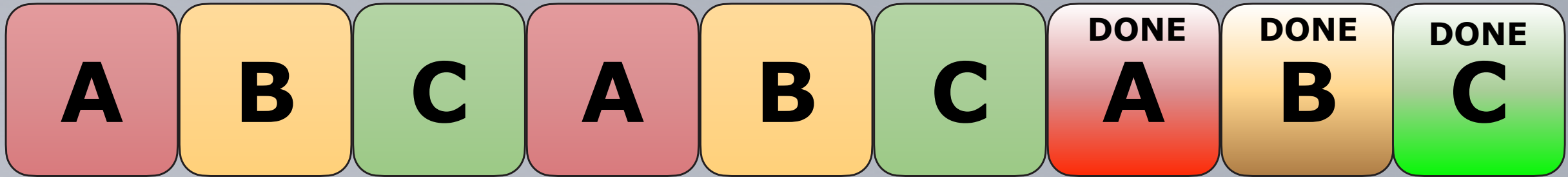


Project C

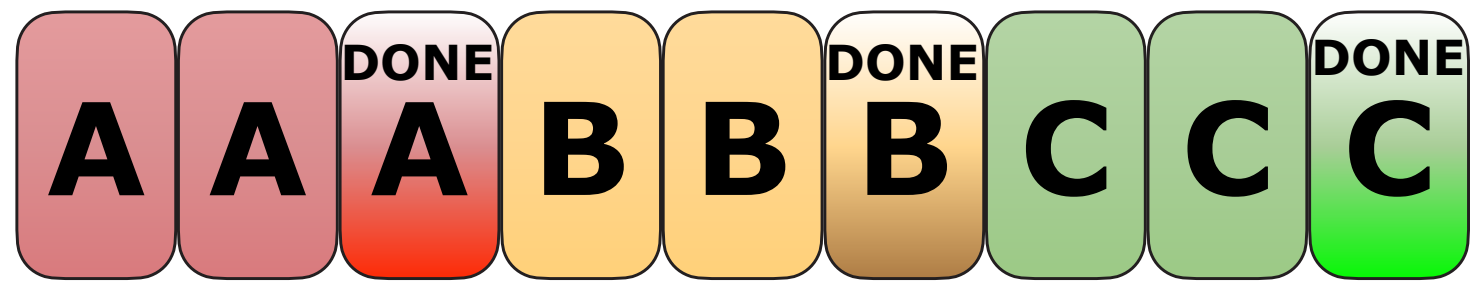
Why did it work? Agile Mono-tasking

なぜうまくいったのか?
アジャイルなモノタスク

source: Joe Justice original research on ~3,500 people
and Weinberg's Table of Context Switching Loss



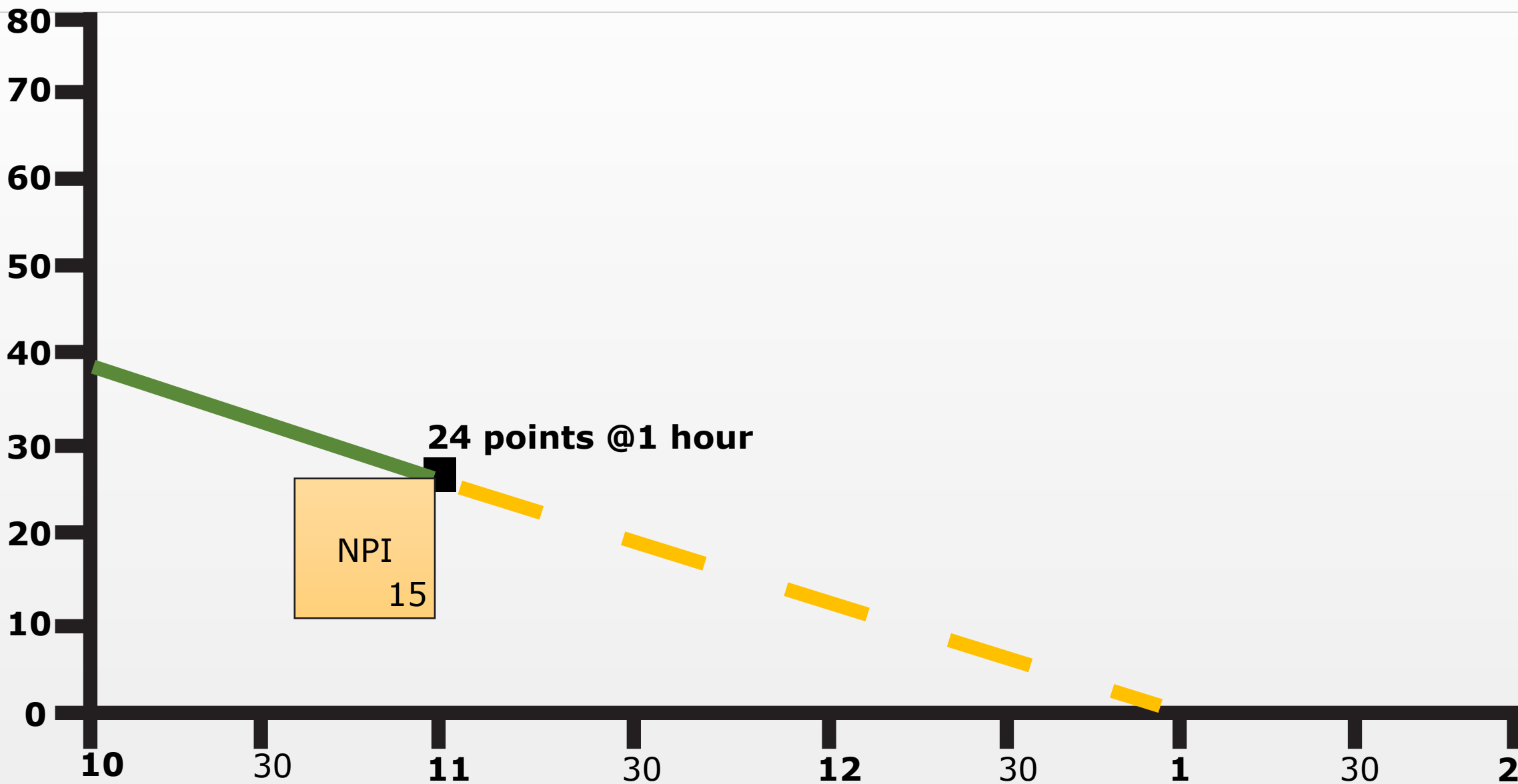
0 January 1 February 2 March 3 April 4 May 5 June 6 July 7 August 8 September 9



A 500% FASTER
B 250% FASTER
C 167% FASTER



SPRINT BURN DOWN CHART

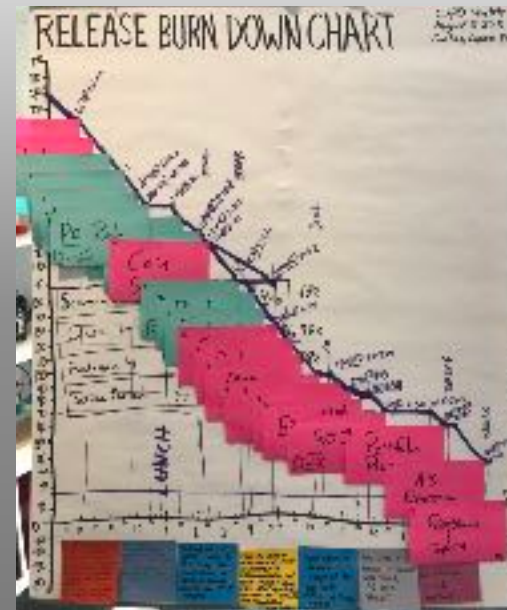


PLAN
予定
15



PLAN

予定



@JoeJustice0

HOMework

[Then Happy Hour]

- *Before you sleep tonight:* Please go to <https://leanpub.com/Scrum-for-Hardware>
- Select "Read Free Sample"
- Read page 13 and 14.
- THANK YOU SO MUCH!
- Please connect with me on Xing, LinkedIn, Facebook, Twitter:
 - Joe Justice



**please
take a
picture**

A close-up photograph of a red robotic arm, likely a 3D printer or a similar manufacturing tool. The arm is holding a metal component. A sticker on the side of the arm reads 'SCRUM SCALE' with a small circular logo. The text 'Scrum for Hardware' is overlaid on the image in a white, hand-drawn style font.

Scrum for Hardware

Paolo Sammiceli
Foreword by Joe Justice

SCRUM MASTER

The Agile Training Seminar
For Business Performance

This book is the ultimate agile training seminar in book form. Business leaders, professionals who are ready to learn, and instructors will find here a complete training regimen with rich content, a training-tested structure, and high value insights that have already resulted in many thousands of agile projects delivered at all types of top tier organizations, from fortune 100 companies to lean startup companies, around the globe.

We have optimized this book to be an immersive experience you can adapt to the time you have available, so we encourage you to dive headlong into these pages, exercises, and practices so you can most directly apply your learning to your work immediately.

As a comprehensive course, this book offers the key practical knowledge for you to understand and be increasingly agile, and to effectively begin practicing or perfecting Scrum from the moment you begin through to realizing your definition of done.

Joe Justice is a highly rated instructor who has led hundreds of agile courses and supported agile transformations for teams and across leading businesses worldwide.

"You really rocked your roles as instructor, cheerleader, and host!"
— Ken Merchant, J5 Star General, USAF Retired

"One of the best professional trainings in the world"
— Fabien Delava, Partner, Bain & Company

"Joe has broken new ground using Scrum in manufacturing"
— Dr. Jeff Sutherland, Co-creator of Scrum



SCRUM MASTER

The Agile Training Seminar For Business Performance

"Joe is a master in teaching Agile with meaningful real-world non-software examples"
— George Tome, Enterprise Agile Coach, John Deere

SCRUM MASTER

The Agile Training Seminar
For Business Performance



JOE JUSTICE
Edited by Phil Klein



Agile HW TRAINING

- Reason for agile
- Scrum and Kanban
- Lean thinking and set-based design
- Agile collaboration and cross-functional teams
- Scaling Agile and managing complexity

Contact us!

courses@nitor.com

procognita.com/contact

info@ABI.Group



OBSERVED NOTES

- ENGINEERS
 - Learn to add value in the boardroom and with financial negotiations
 - Stay 80%+ engineering on product and product production
 - If anyone blocks you from speaking in the boardroom, leave

Joe Justice

Joe@ABI.group

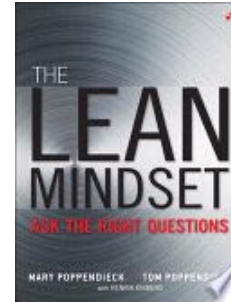
“MORALE MULTIPLIES VELOCITY”

“If you are not growing you are dying”

“An XL project is really 18 XS projects waiting for modular architecture”



- Author of Scrum Hardware Guide
- Chair of Agile Business Institute
- Creator of eXtreme Manufacturing Methods



Learning in: Lockheed Martin, Google, Amazon, Microsoft, Boeing, USAF, HP, Tesla, Toyota, MIT, Siemens, Pictet Bank, and 100+ more.

