ScrumAlliance®
Transforming the World of Work

# Tangible Scrum

Fabian Schwartz | 21 June 2017

# @FabianSchwartz

CEO at Casmena

Born in 1979 in Berlin, attended software engineering and later Business Administration in Sydney. Working in different positions from developer to program manager.

Experience gathered allowed him to create his own companies: SBS and Casmena, delivering Agile training and consulting in South America.

17 years in the IT industry (7 as a Consultant)

12 years as University lecturer and trainer

10 years with Scrum

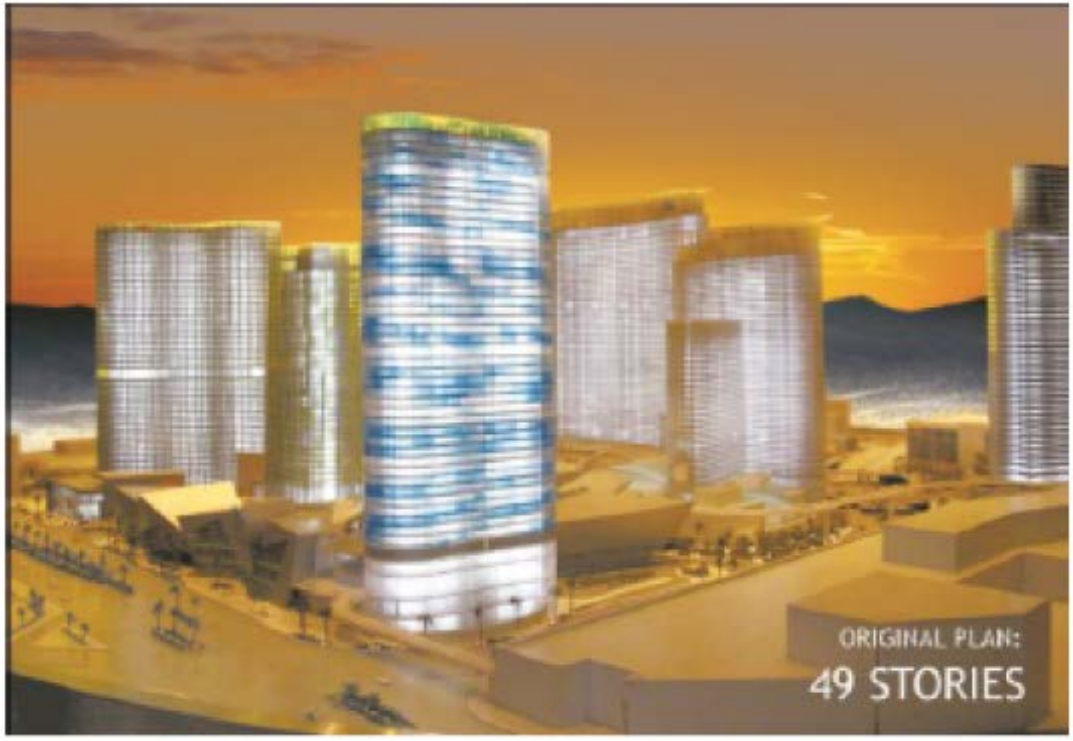
# City Center – Harmon Hotel (Las Vegas)

# The Plan

- Scope: 49 stories luxury hotel
- Cost: US$ 4 billion
- Time: 2006 – 2008

Participants

- Norman Foster
- MGM Resorts
- Dubai World
- Perini
- Pacific Coast Steel
- Etc



# The Result

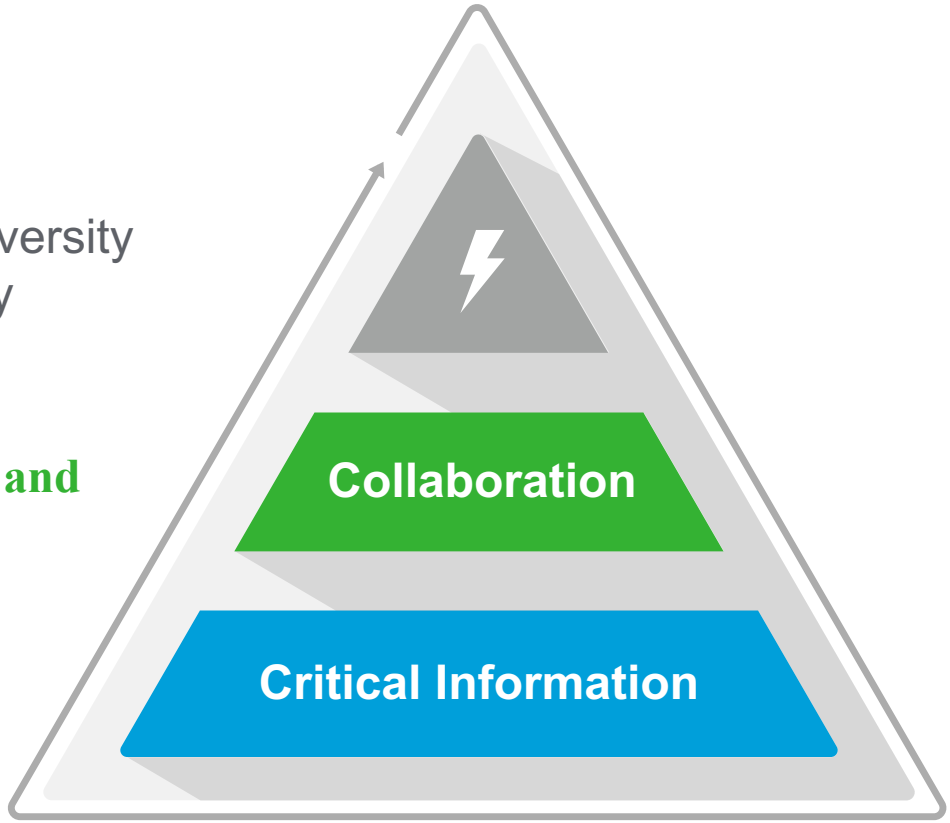
- Scope: 28 stories
- Cost: US$8.5 Billion
- Time: 2006 – 2012

# Why did this happen?

- Dr. Burçin Becerik, Harvard University
- Dr. Peter Love, Curtin University

**Inadequate communication and collaboration**

**Missing precision and efficiency with critical information**



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# Agenda

1 **Megatrends**
2 Complexity & Uncertainty
3 Scrum in Construction
4 Scrum in Oil & Gas
5 Scrum in Manufacturing
6 Summary

"My concern is that decision makers are caught in traditional, linear thinking to think about the forces of disruption and innovation shaping the future."

- Klaus Schwab

# Megatrends


Source: The Fourth Industrial Revolution, Klaus Schwab 2017

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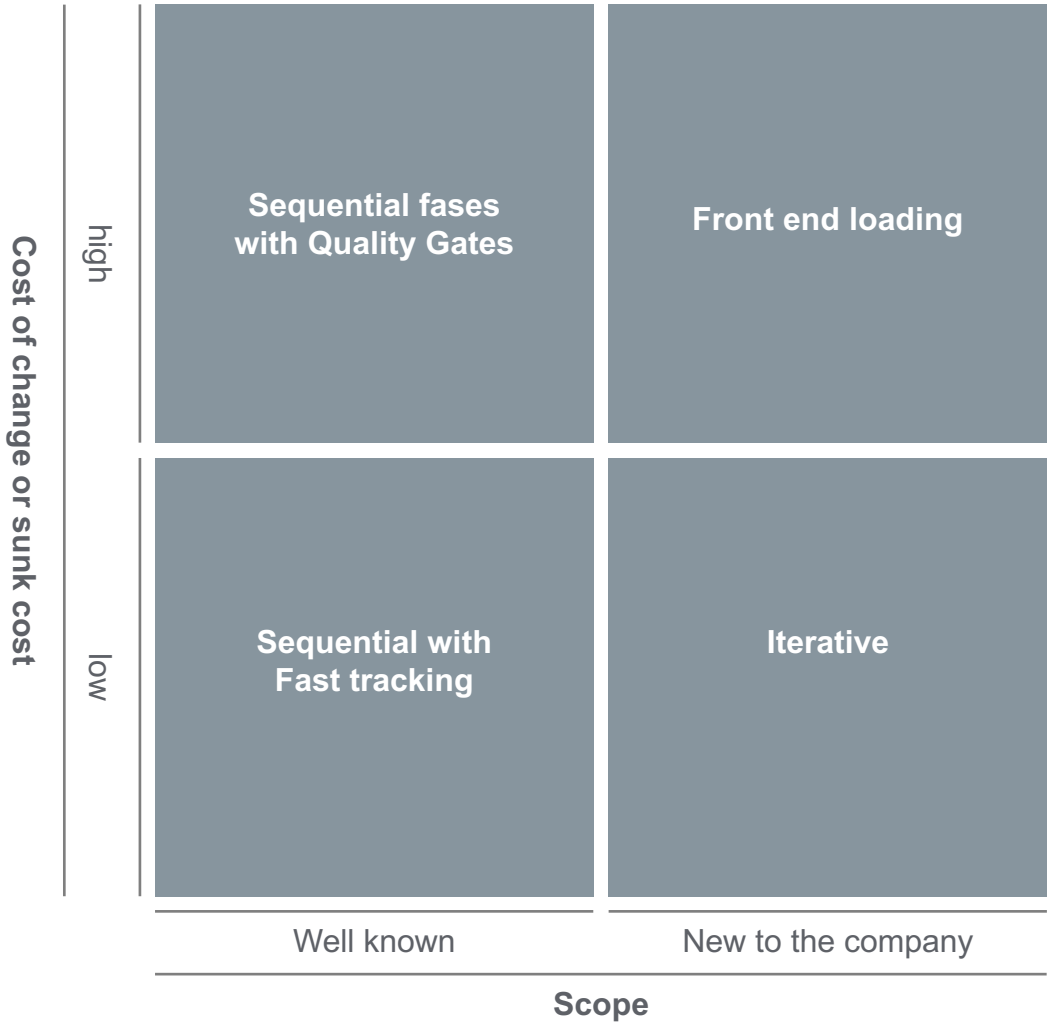
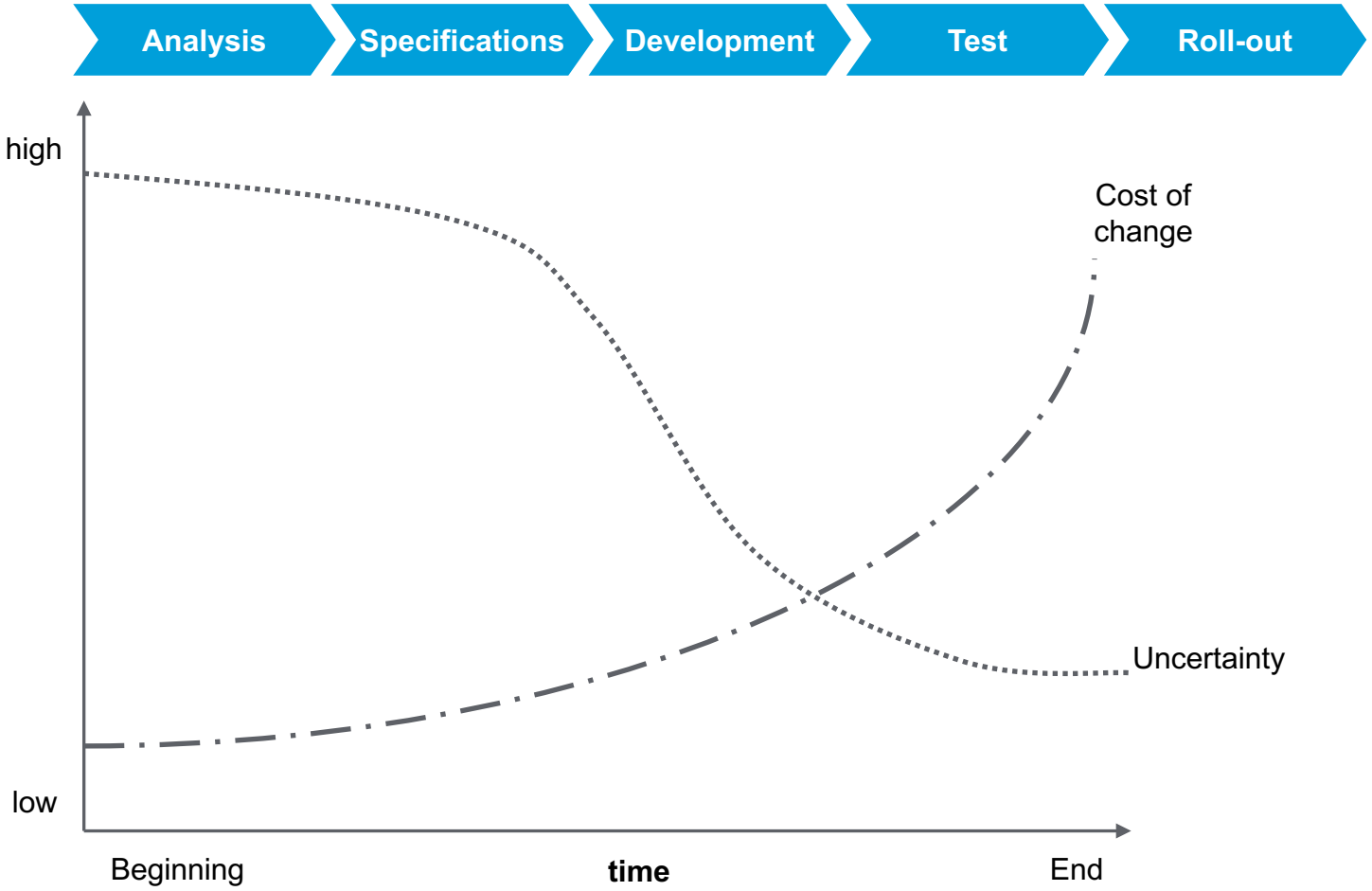
# Cost of Change vs Certainty of Scope



# Fail early


Analysis
Specifications
Development
Test
Roll-out
high
low
Cost of change
Uncertainty
Beginning
time
End

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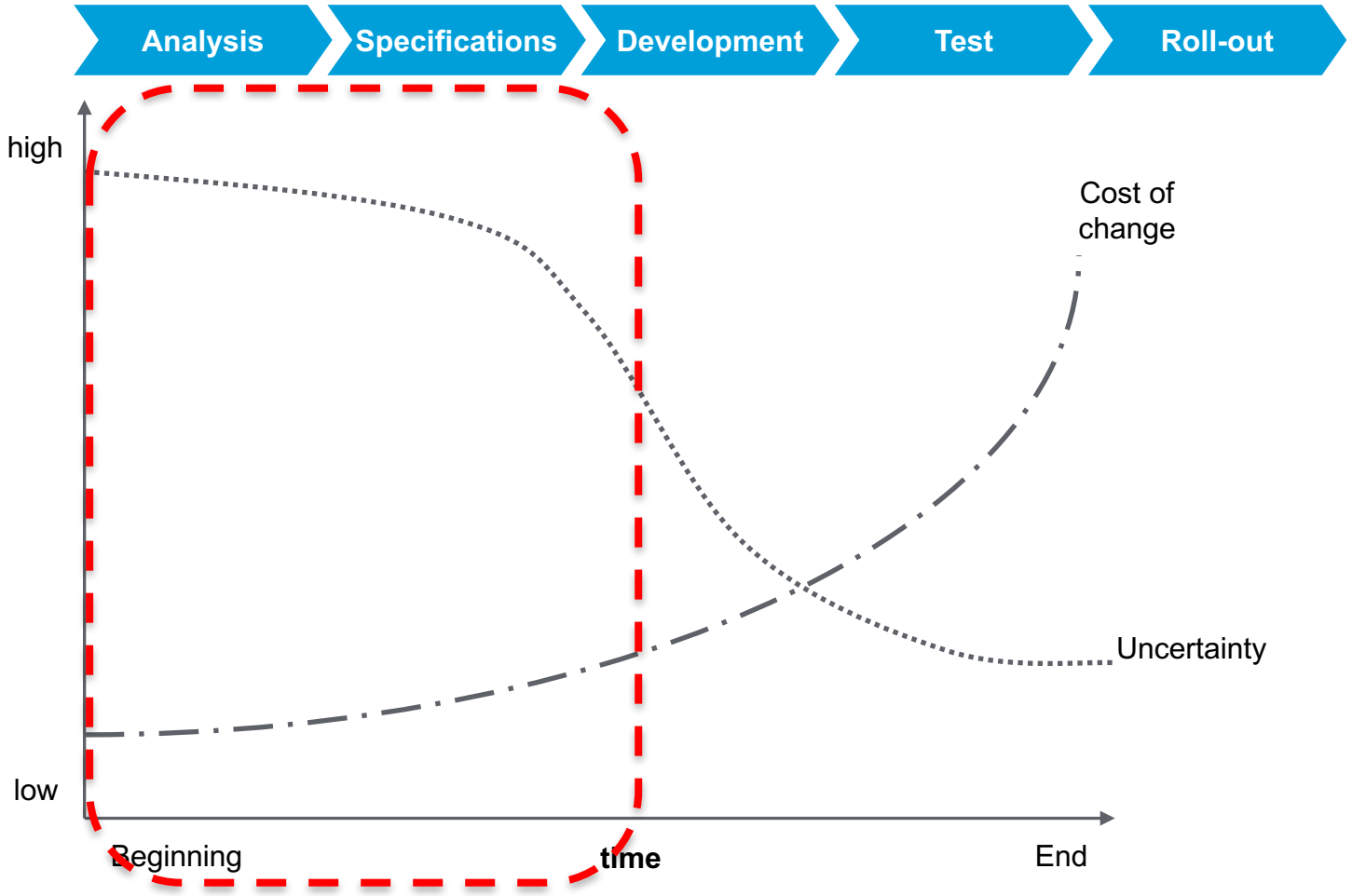
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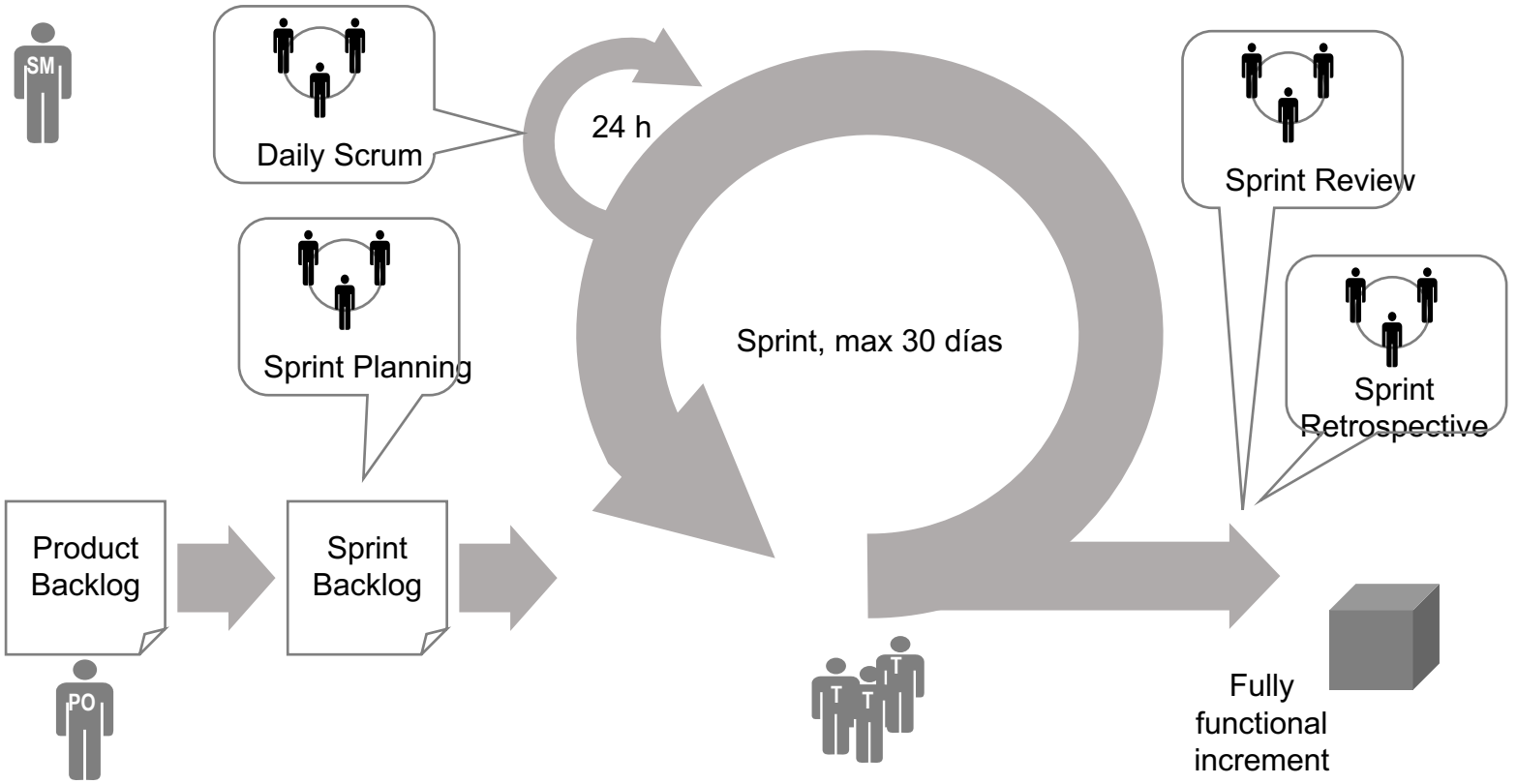
# The Scrum Framework



“Where is the uncertainty in your project?”

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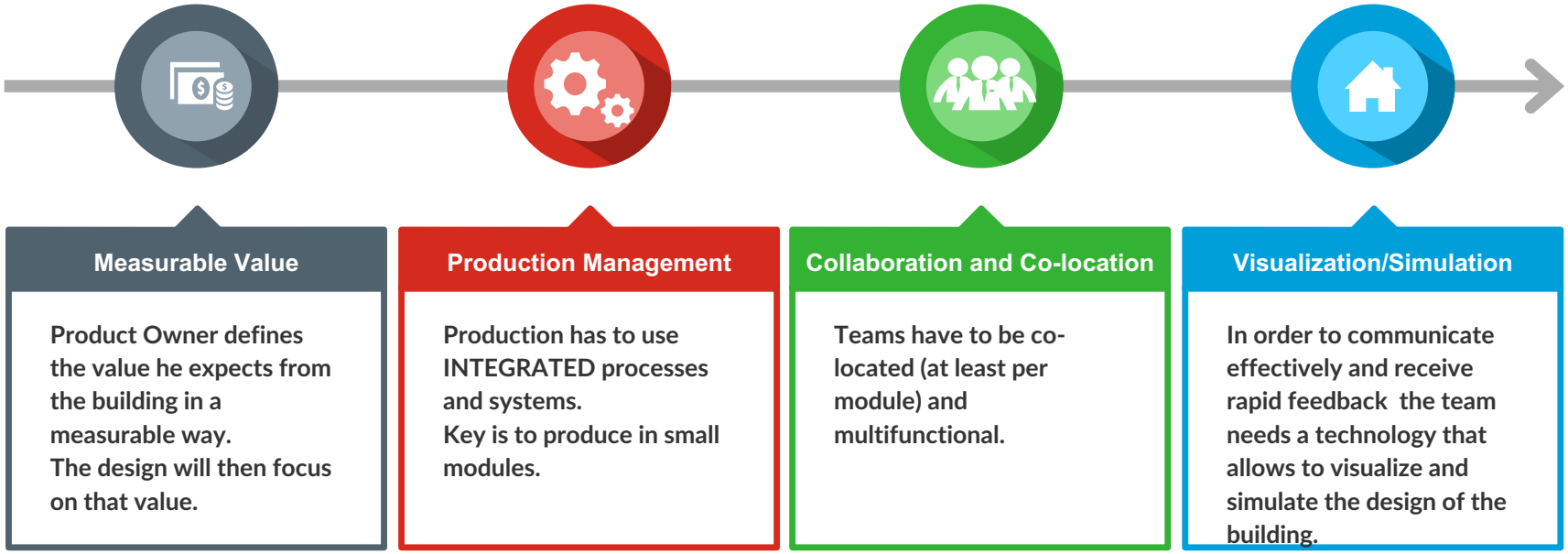
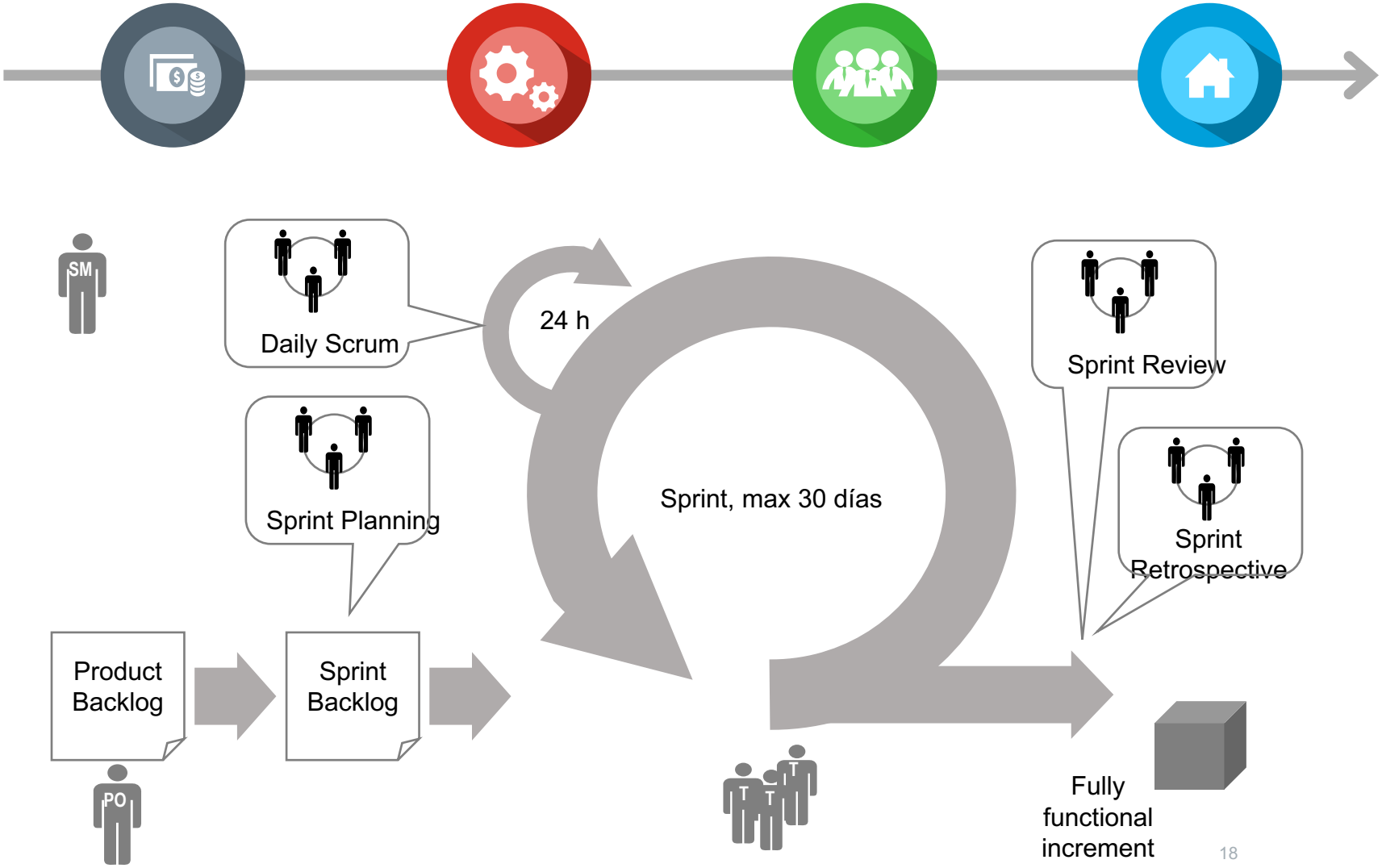
# 15 stories in 6 days – Mag. 9 resistant

# Integrating Project Delivery




Source: Integrating Project Delivery, Martin Fischer, Howard W. Ashcraft, Dean Reed, Atul Khanzode, 2017

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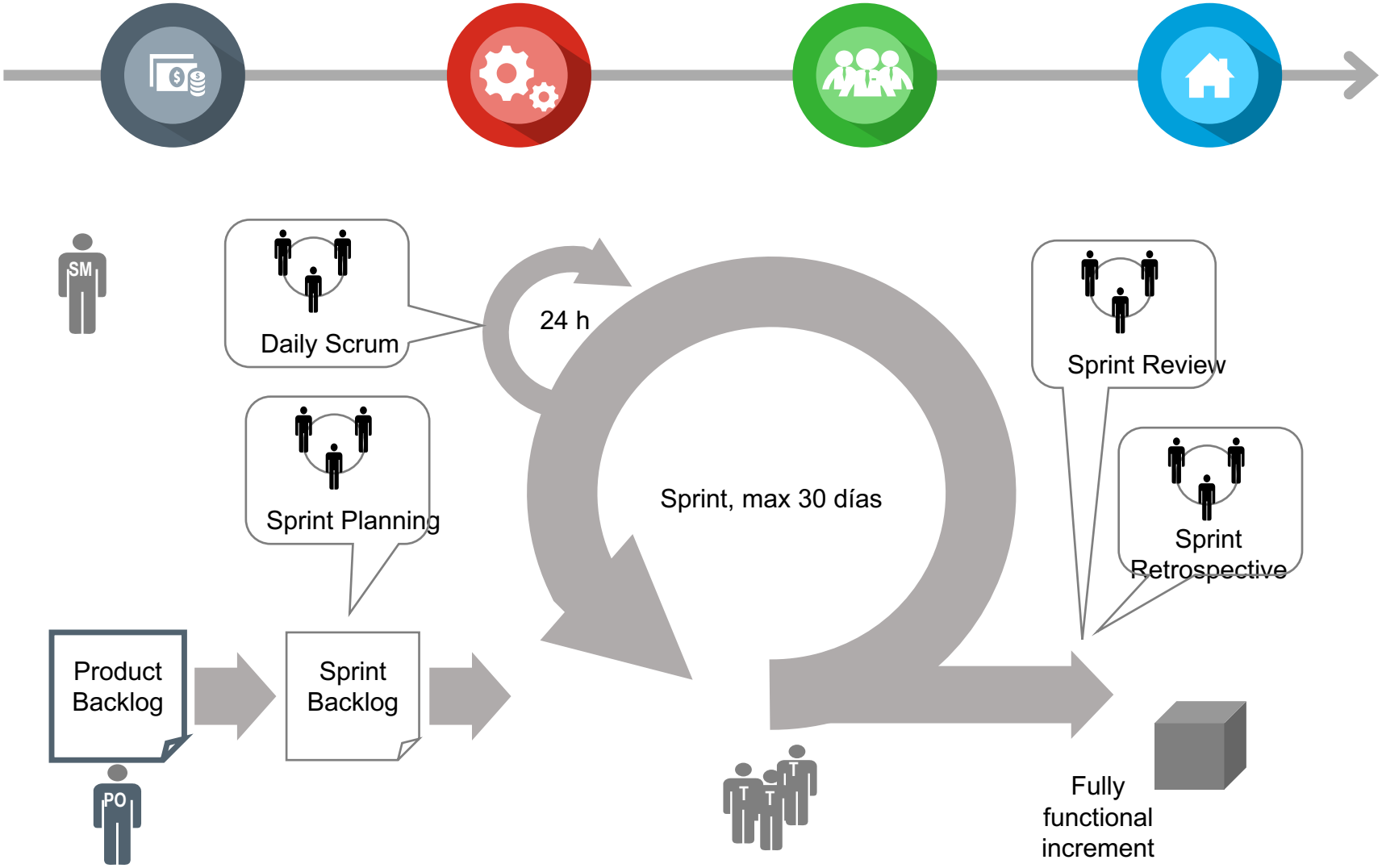


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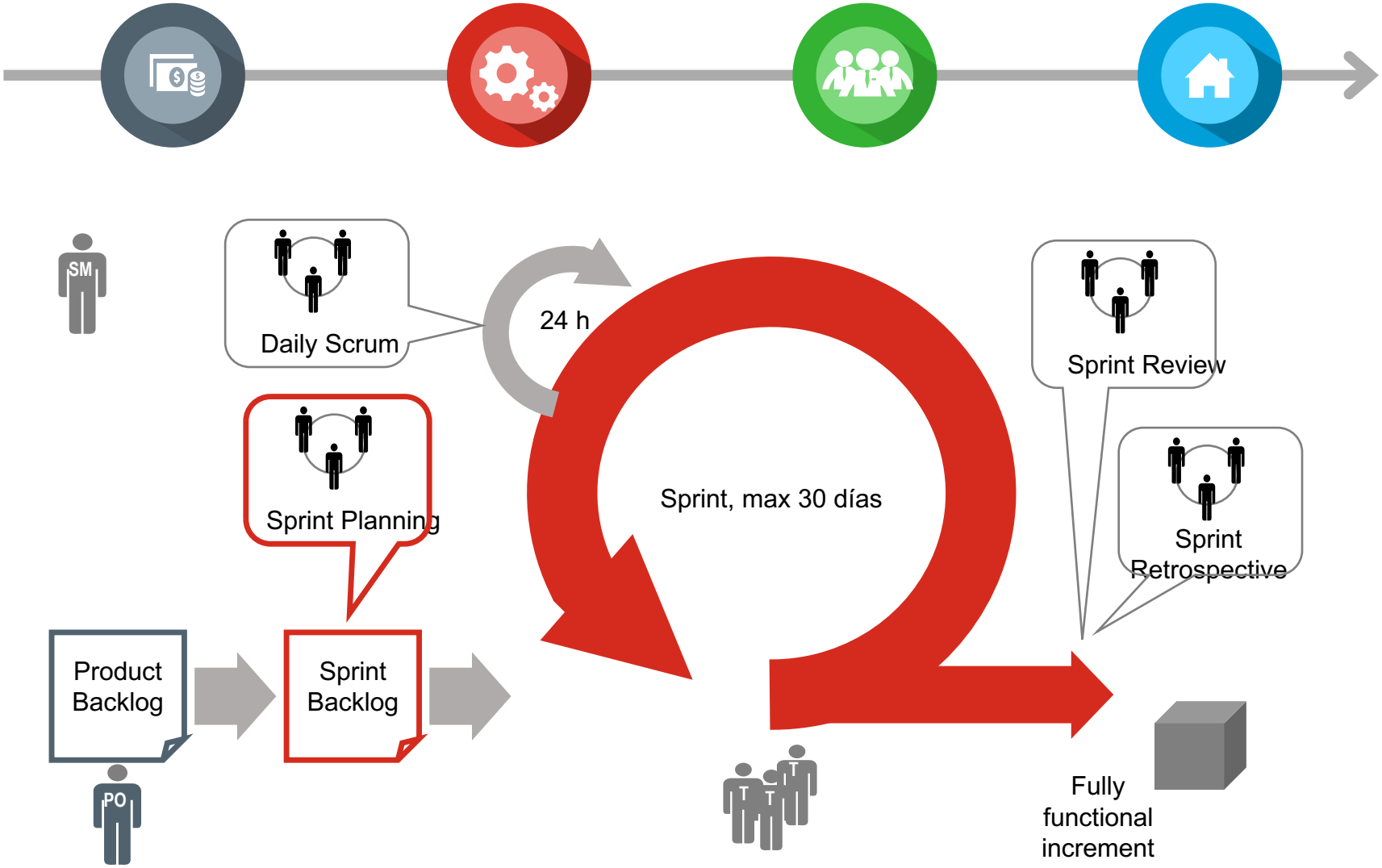


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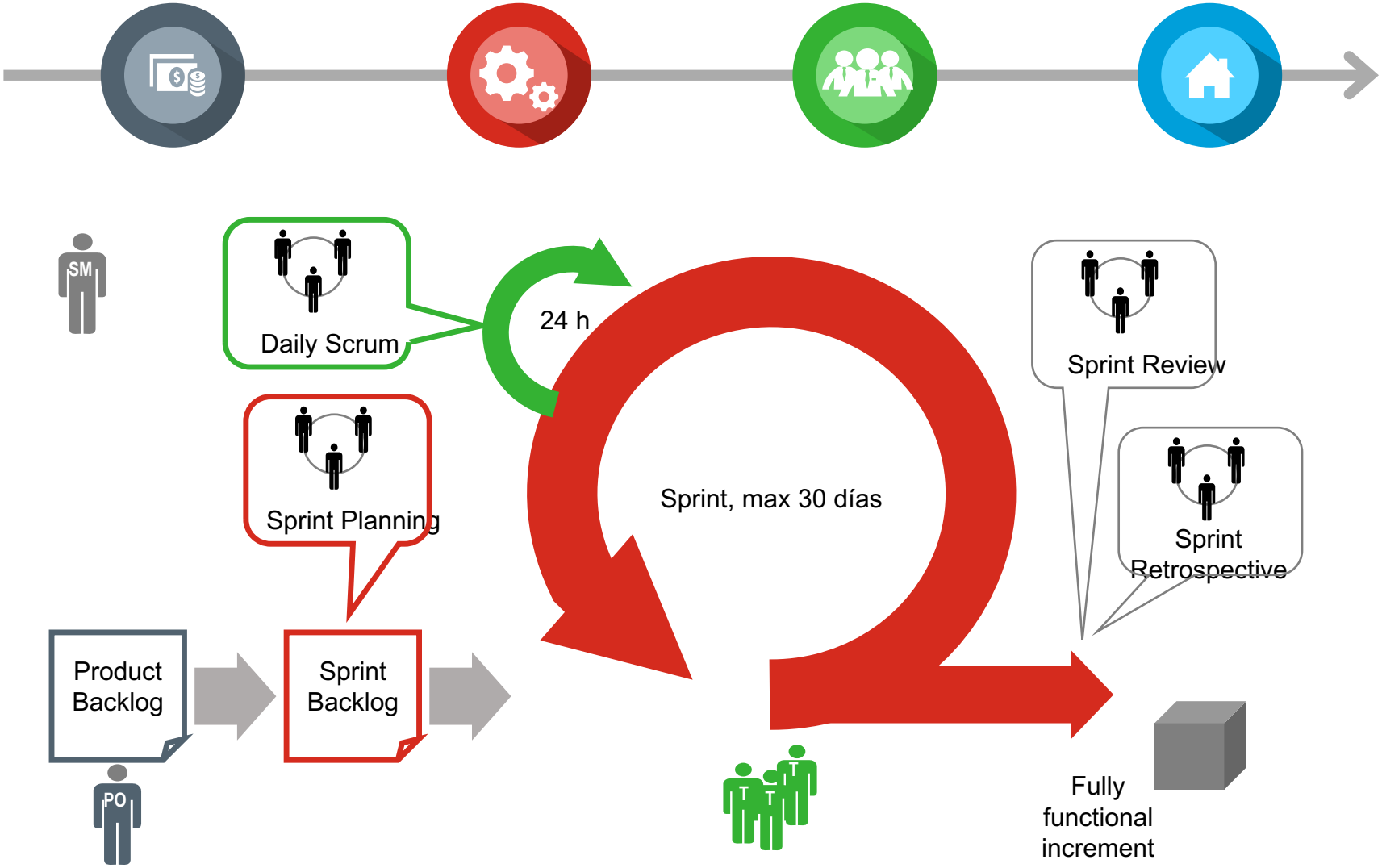


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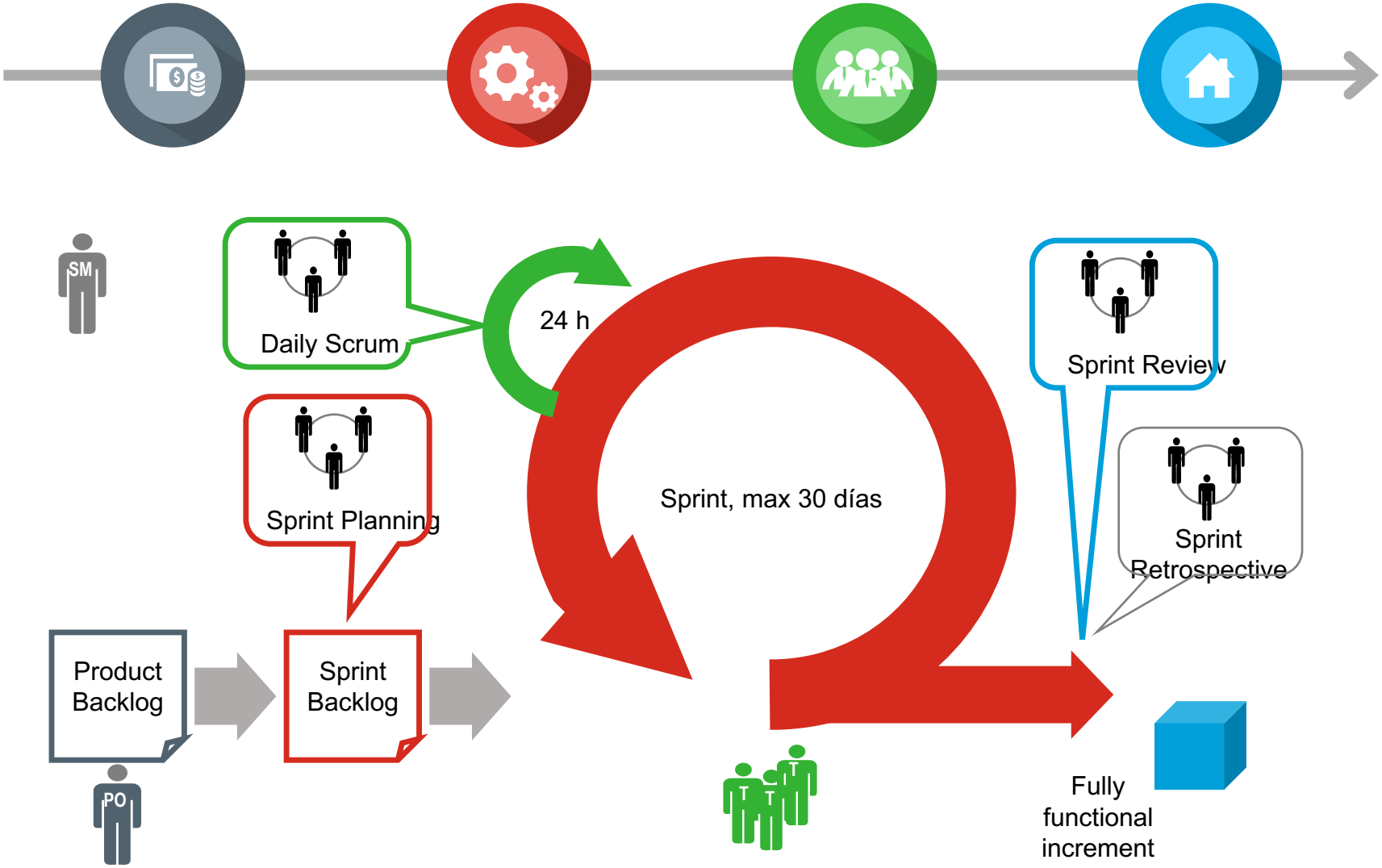


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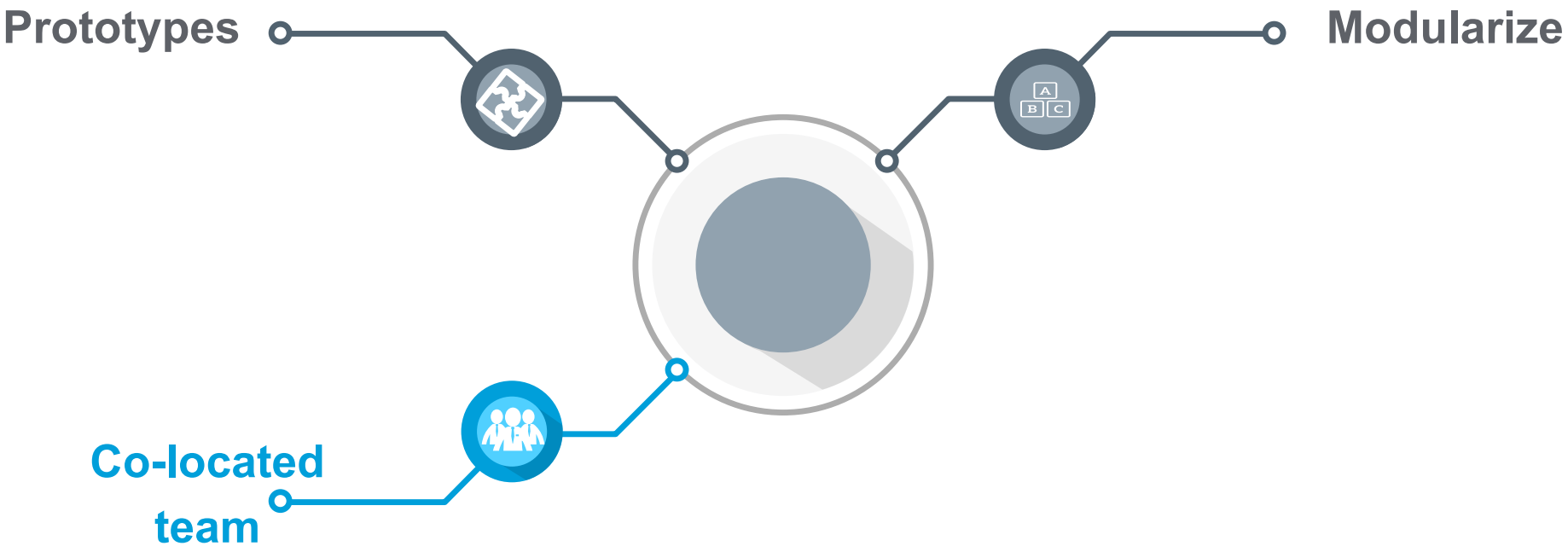
# Takeaway for Scrum in Hardware




Source: http://wikispeed.org/2017/06/scrum-in-hardware-guide-draft/

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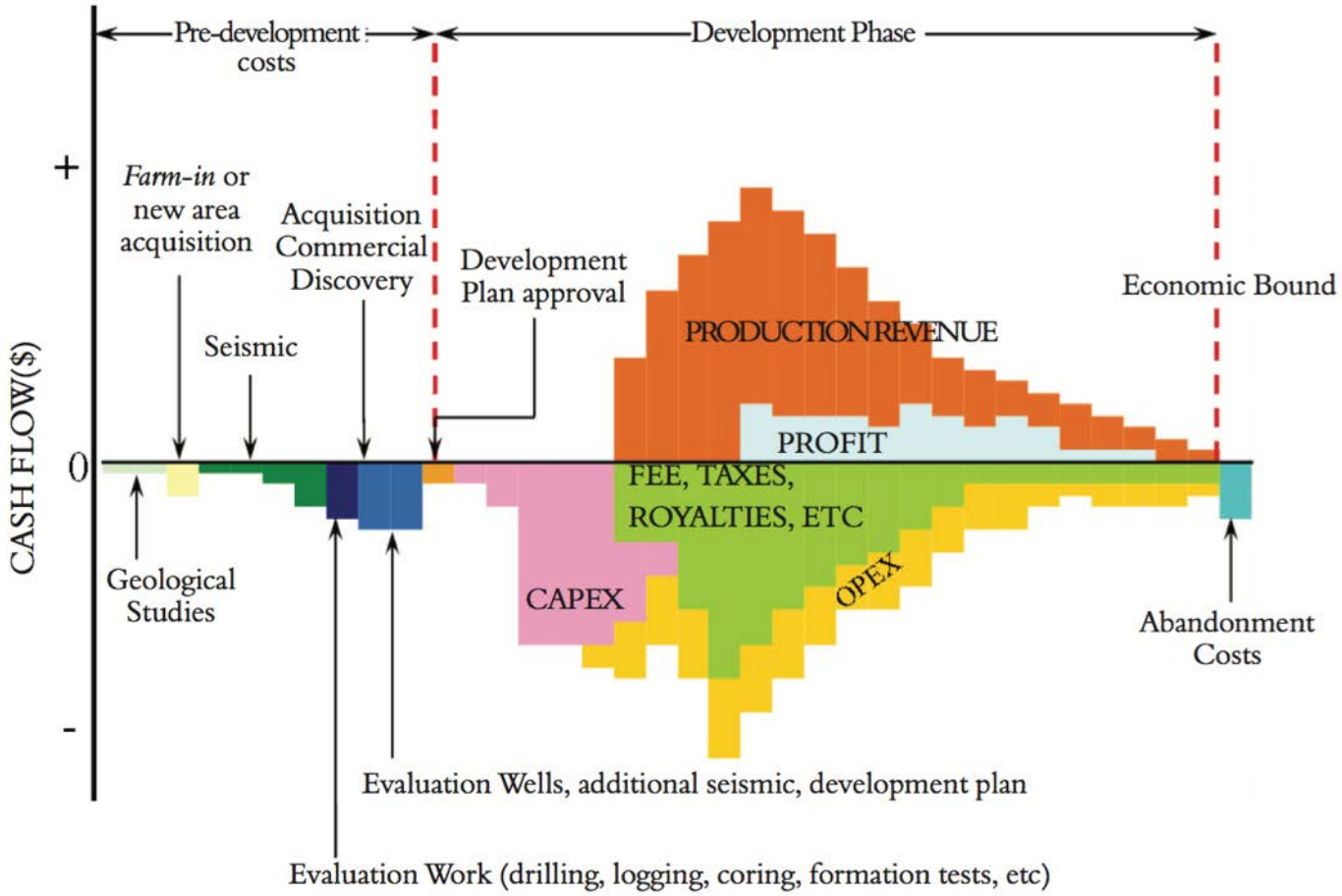
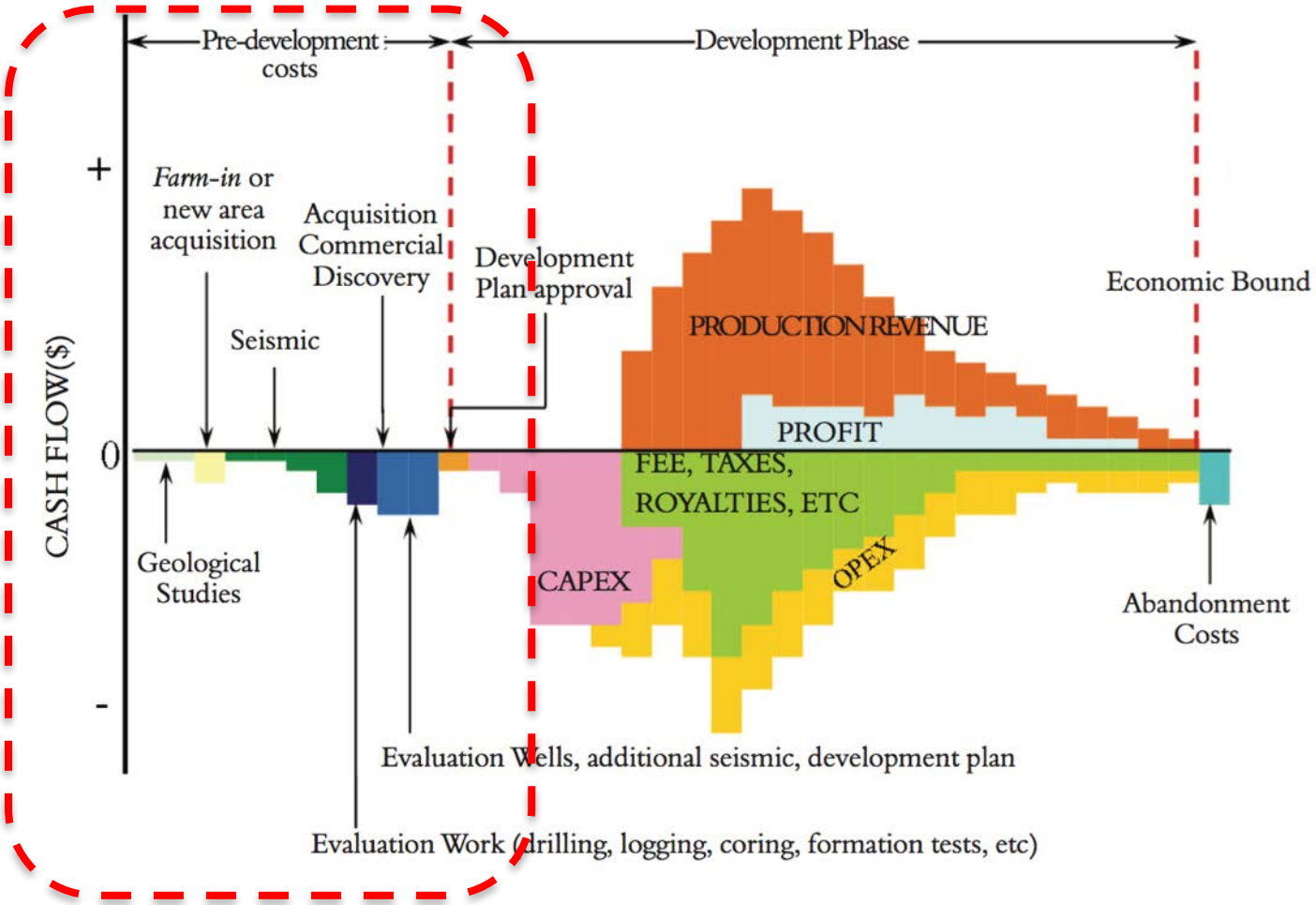
# Cash Flow in Oil&Gas projects




Source: A typical E&P cash-flow project based upon the Brazil Fiscal System (Suslick, 2005)

# Cash Flow in Oil&Gas projects




Source: A typical E&P cash-flow project based upon the Brazil Fiscal System (Suslick, 2005)

# Case Study – Building a Pipeline

**Cut PNID into chunks**

Slice the process flow into modules eg. engineering, civil, electrical.

**Do the modelling**

In one Sprint, advance the modelling until you reach around 30%

**Discuss the model**

Sprint Review: Discuss the model with all engineers and as well with the client

**Continue modelling**

Use the results to do the next Sprint

Source: Hernan D. Perez, Toyo **Engineering**

# Modelling/Prototyping - 3D Printing

Testing hydraulic fracturing fluids for complex networks of shale rock

- 3D printing shale rock pore networks
- could also create perfect, replicas of rock samples with identical porosities

Testing sample parts in engineering

- Printing sample parts
- E.g. to review design options for hydrogen lines (hydrogen lines inspection is very complex)

# Cases

**GE Oil and Gas**

**has started experimenting with plastic and metal 3D printers ➔ reduced time for prototyping from 12 weeks to 12 hours**

**Halliburton**

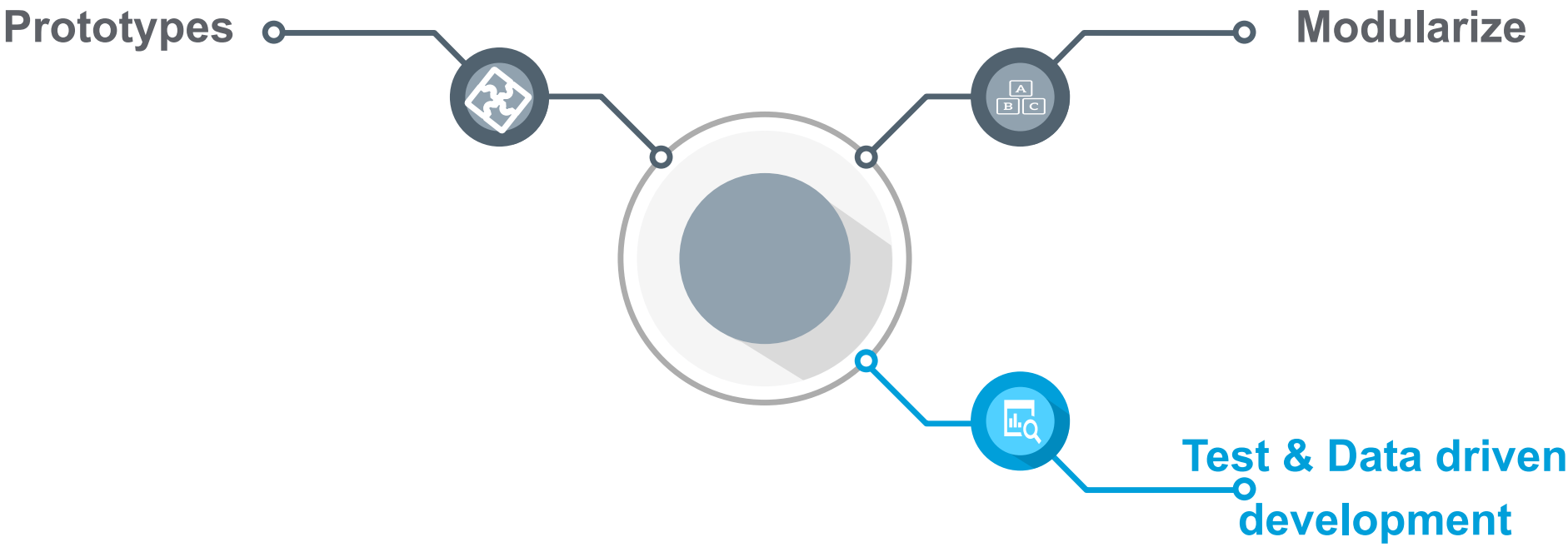
is using 3D printing across different business lines

- completion tools
- wire lines
- perforation tools
- testing & subsea, drill bits

**Oil&Gas company (anonymous client McKinsey)**

**used a "scrum" approach to simplify drilling standards from 1,000 pages to fewer than 100 ➔cut drilling cost by 30 percent.**

# Takeaway for Scrum in Hardware

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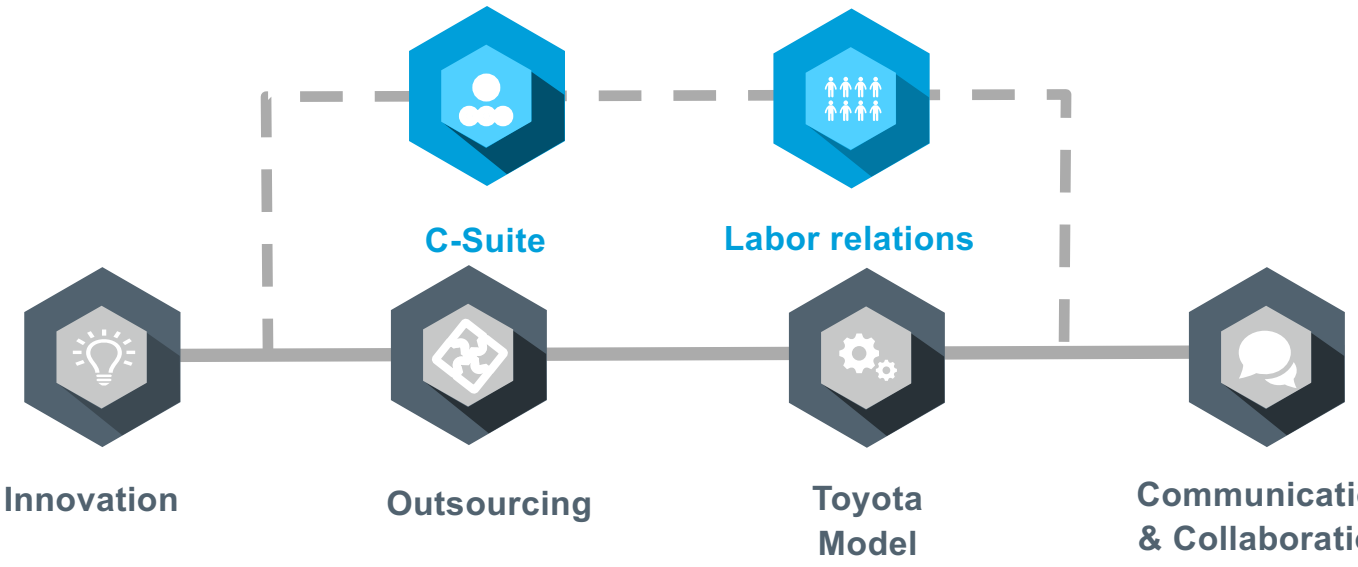
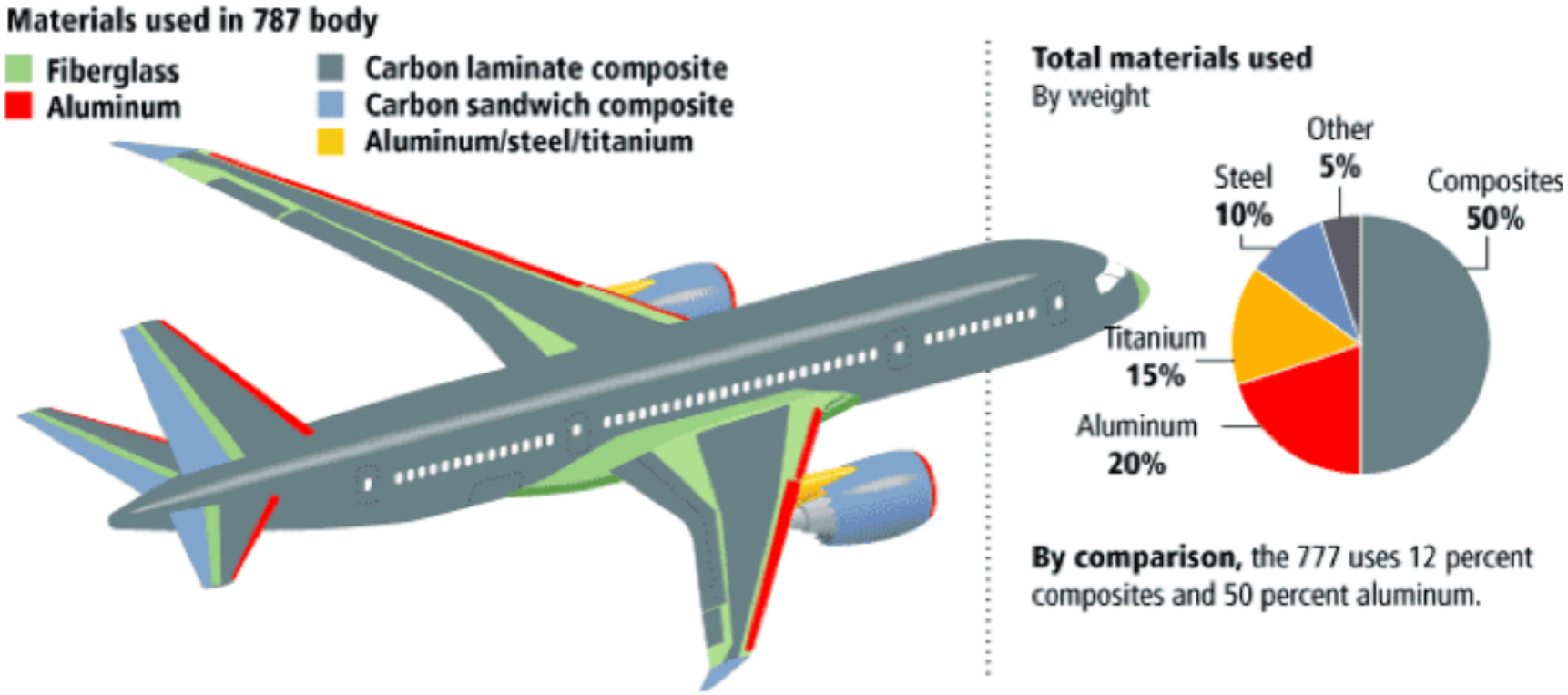
# Boeing Dreamliner

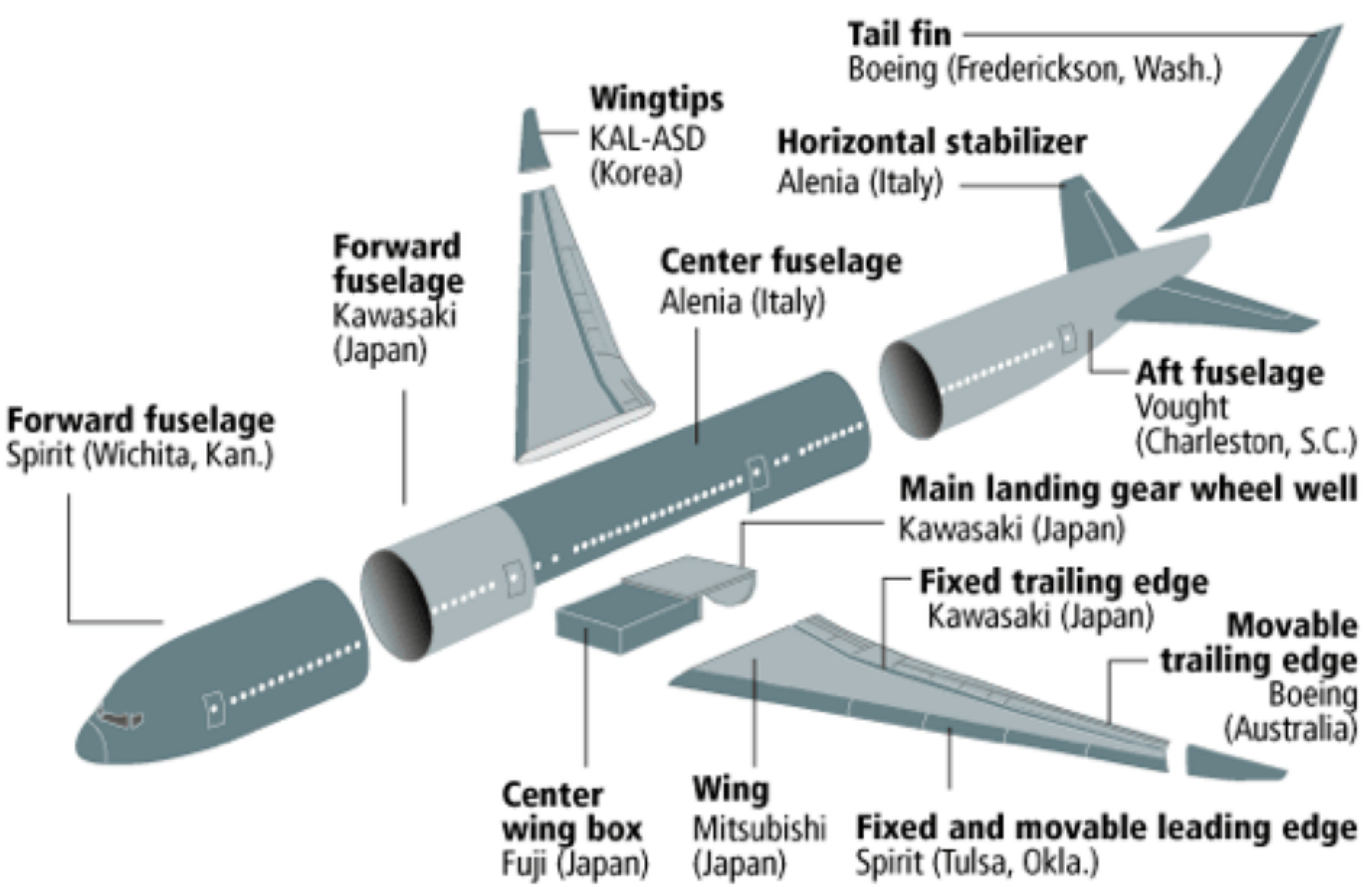



# Boeing Dreamliner - Innovation




Source: Boeing

# Boeing Dreamliner – Modular/Outsourcing

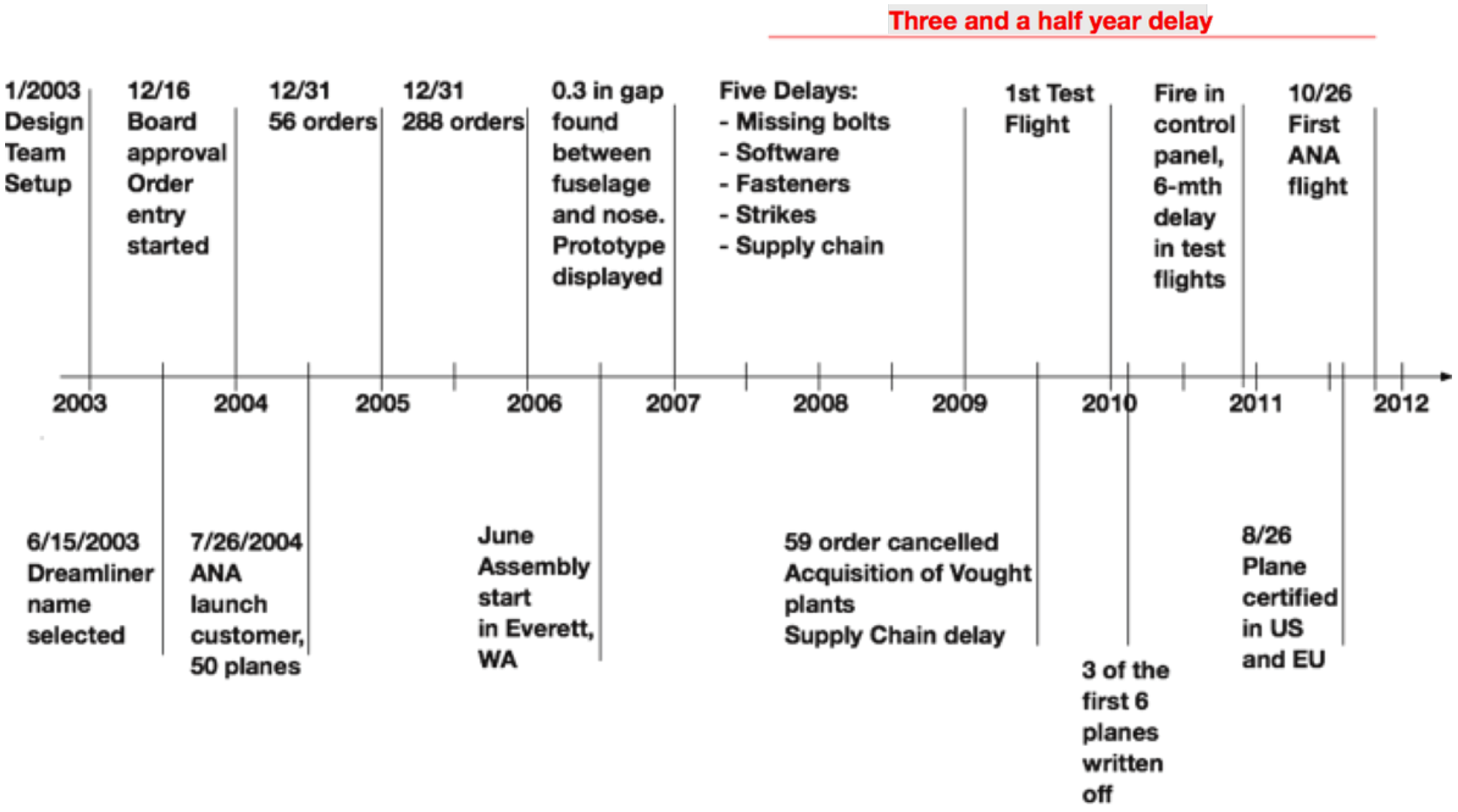



**PARTS NOT SHOWN**

- **Landing gear** Messier-Dowty (England)
- **Wing/body fairing** Boeing (Canada)
- **Landing gear doors** Boeing (Canada)
- **Cargo access doors** Saab (Sweden)
- **Passenger entry doors** Latecoere (France)
- **Engines** GE (Evendale, Ohio)
- **Engines** Rolls-Royce (England)
- **Engine nacelles** Goodrich (Chula Vista, Calif.)

Source: Boeing

# The Dreamliner 787 Launch




Source: Boeing

# Extreme Manufacturing - Wikispeed

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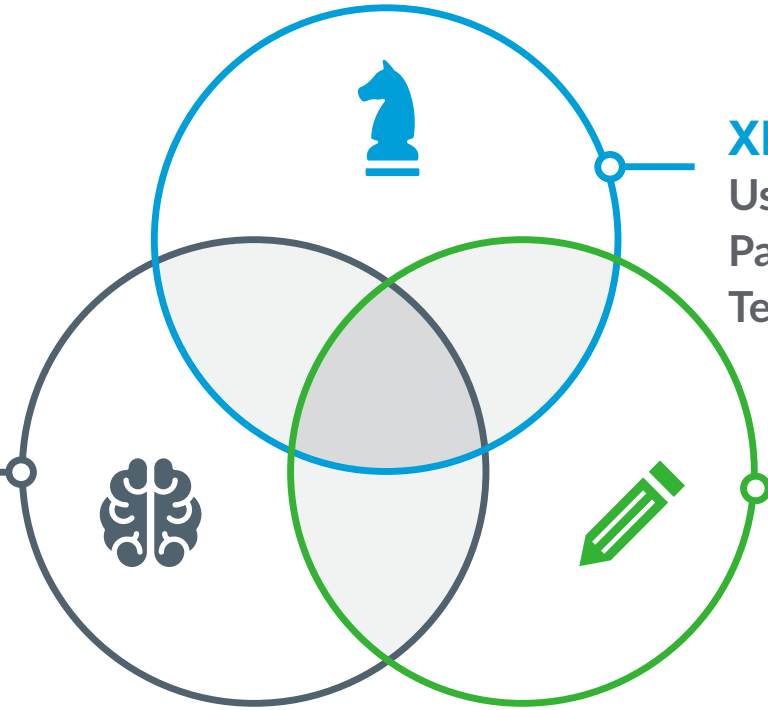
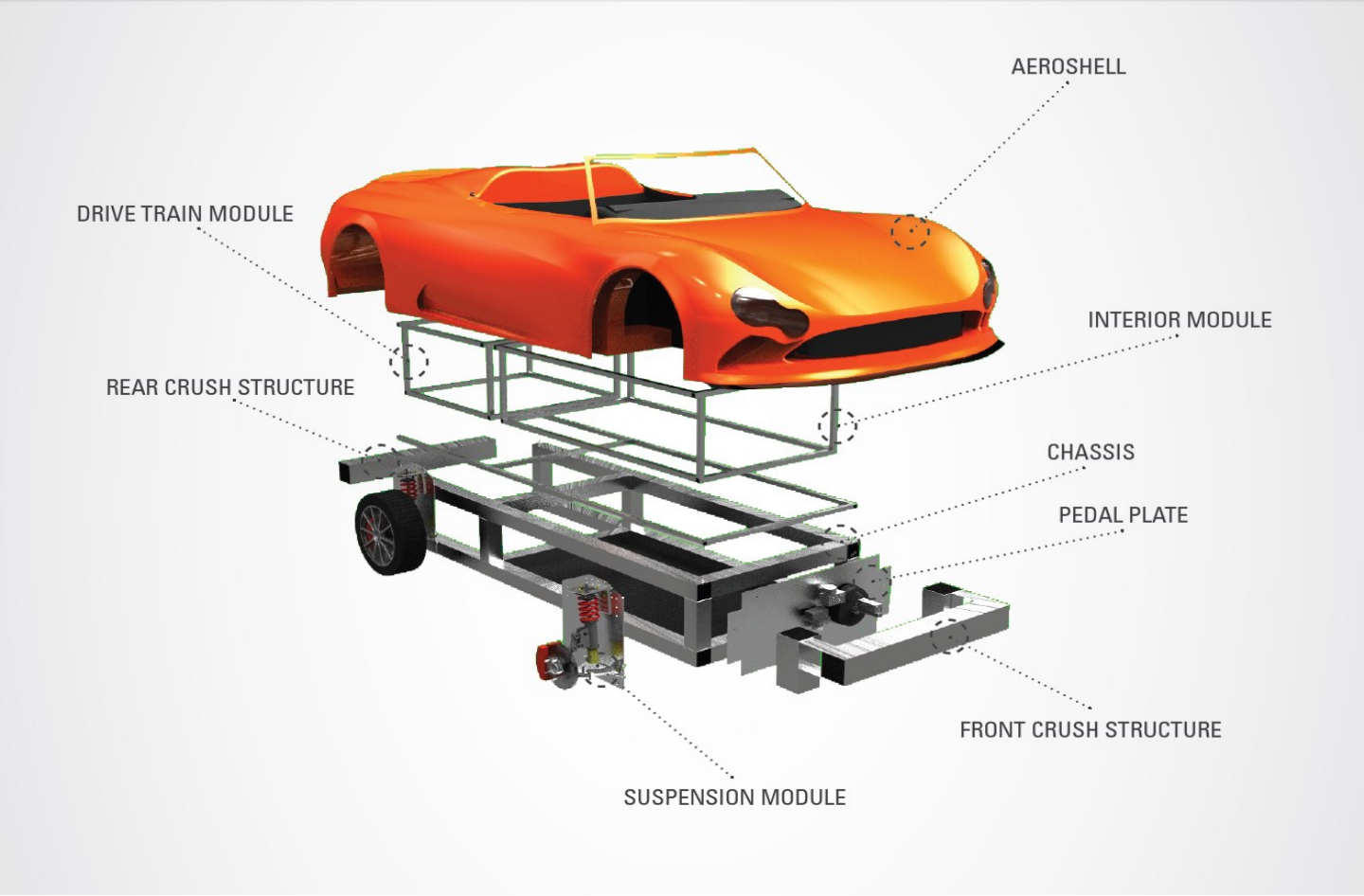


**XP Engineering Principles**
User Stories
Pairing and Swarming
Test Driven Development

**Scrum Organization**
Roles & Responsibilities
Iterative Design/Sprints
Make Work Visible
Measure Velocity
Continuous Improvement

**Object Orientated Architecture**
Modular Components
Contract-First Design
Design Patterns
Re-use and Inheritance

# Slicing (Each module should test a PO hipothesis)




Source: Joe Justice, Scrum Inc. & WikiSpeed

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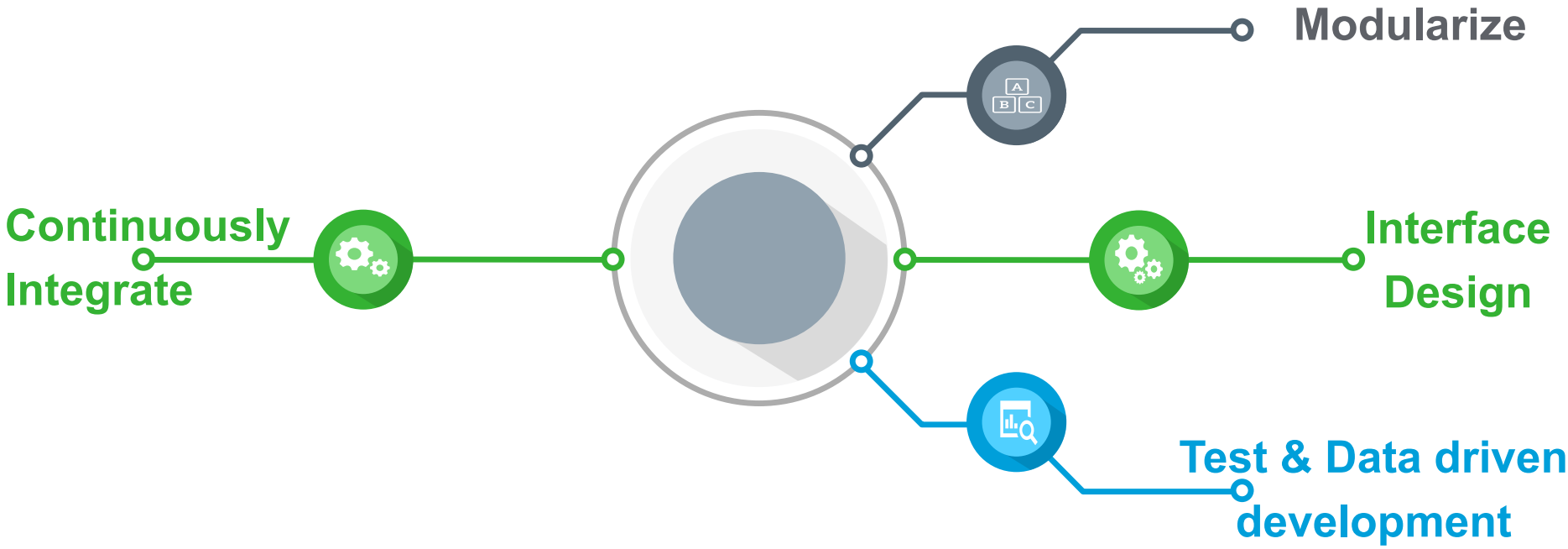


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# The Scrum in Hardware Guide


**Have a working product at the end of each Sprint!**

Source: http://wikispeed.org/2017/06/scrum-in-hardware-guide-draft/

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ScrumColombia.Org

# Credits

**Dr. Raymond Levitt**
Professor - Stanford University

**Dr. Jeff Sutherland**
Founder of Scrum, CEO
Scrum Inc

**JJ Sutherland**
Chief Product Owner,
Scrum Inc

**Joe Justice**
Founder Wikispeed

**M Kelley Harris**
Agile Coach & Trainer
SourceCell

**Hernan D. Perez**
Project Manager
Whisper Energy

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# Thank you for attending

Fabian Schwartz | 21st of June 2017