



Scrum.org™

The Home of Scrum

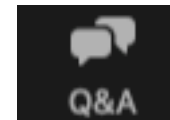
Scrum, Systems Engineering und Compliance: Agilität in regulierten Umgebungen erfolgreich einsetzen

Jean-Pierre Berchez & Joachim Pfeffer

October 29 2026

Wie wird es ablaufen?

- Eure Mikrofone werden stummgeschaltet.
- Der Webcast wird aufgezeichnet. Die Aufzeichnung und der Foliensatz werden innerhalb von 24 Stunden nach dem Webcast zur Verfügung gestellt.
- Stellt gerne Fragen!
 - Reicht die Fragen über die F&A (Q&A)-Funktion in ZOOM ein.



Was ist Scrum.org?

Mission:
*Helping People and
Teams Solve
Complex Problems*



Ken Schwaber
Scrum.org Founder,
Chairman and
Co-creator of Scrum





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1.

Herausforderungen und Beispiele

Herausforderungen

- Verschiedene Domänen
- Bau- und Testzeiten
- Lieferzeiten
- Multiprojektmanagement
- **Doku und Normen**

Bekannte Beispiele

- Automotive: WIKISPEED
 - [about | wikispeed](#)
- Aviation: Saab Gripen
 - [Agile Design of an Agile Fighter at Saab Aerospace](#)
 - [Owning the Sky with Agile](#)



Bild von Olavi Anttila auf Pixabay



Bild von Rita Schmid
auf dem Scrum Day 2015 in Filderstadt Deutschland

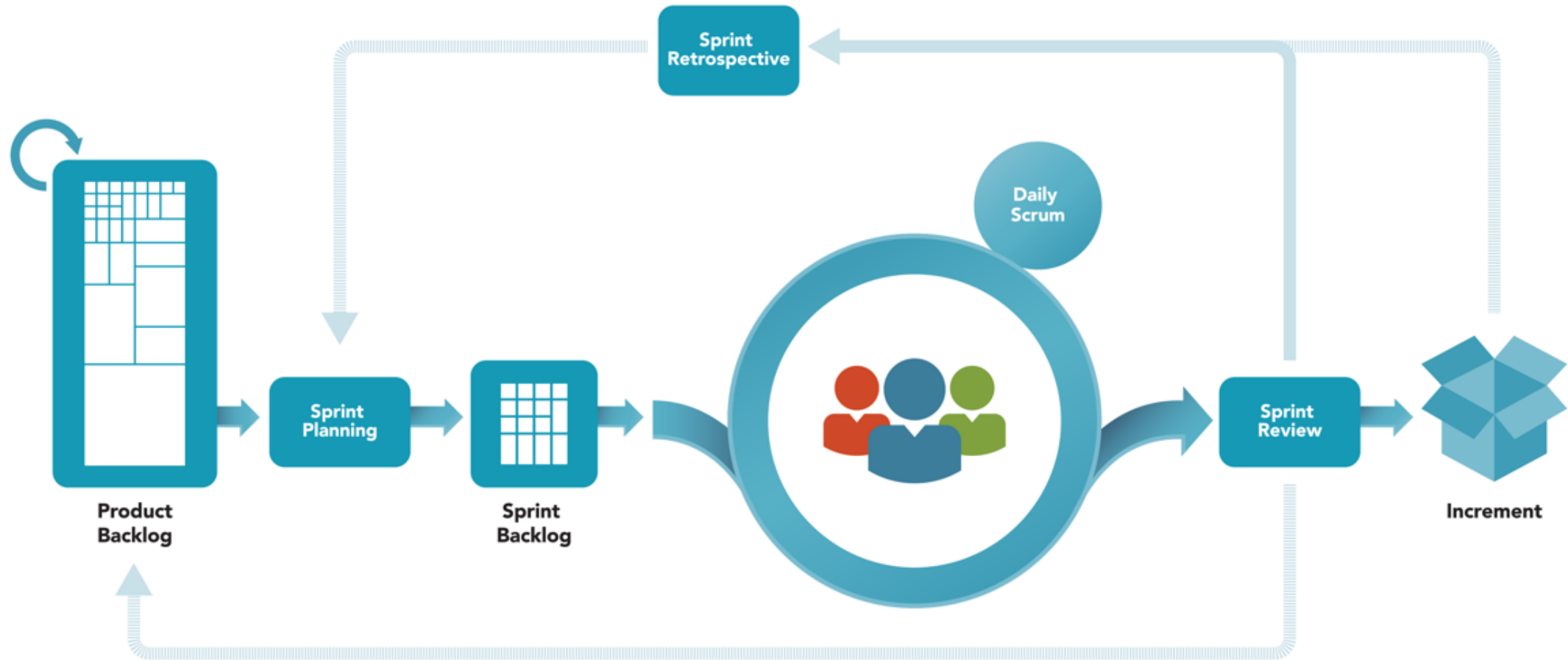
Beispiele Maschinenbau & Co

- Nockenwelle
- LKW-Auflieger
- S-Bahn-Kompressor
- Fahrrad-Bremsen und –ABS
- Industrielüfter
- Fördertechnik
- Condition-based Maintenance (Forschung)

Mechatronik

- Brennstoffzelle NFZ
- Antriebsstrang E-Auto
- Hörgeräte
- Messgerät (Spektroskop)
- Display für 3D-Brille
- Steuergeräte Defence
- Sensorik & Missionsplanung (Defence)

Scrum



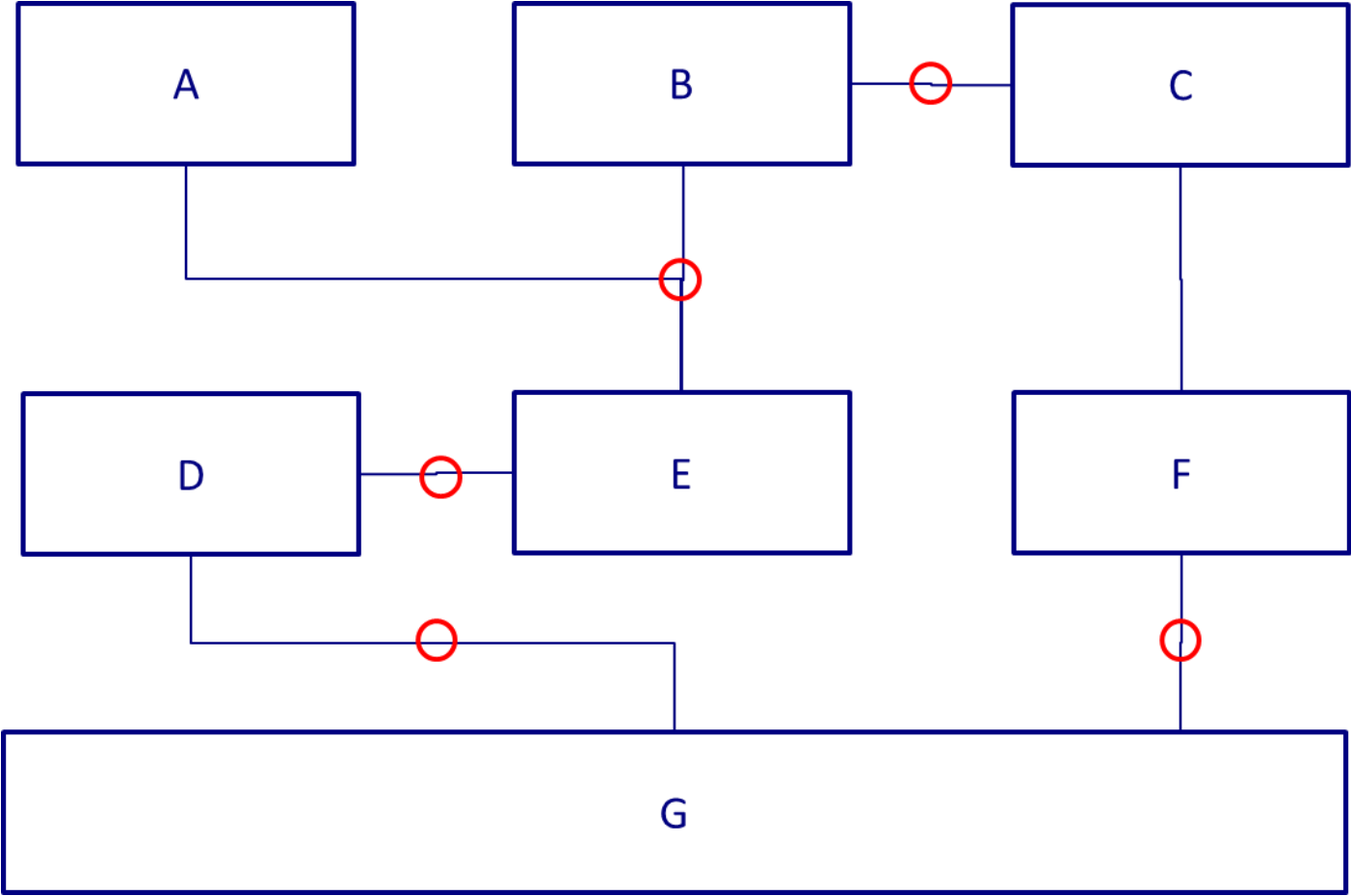
A grayscale background image of a diverse group of five people (three men and two women) sitting around a table in a meeting. They are looking at laptops and documents. Overlaid on the center of the image is a large, teal-to-blue gradient circle containing the white number '2.'. Below the circle, the text 'Inkremente in der Hardware' is written in a bold, black, sans-serif font.

2.

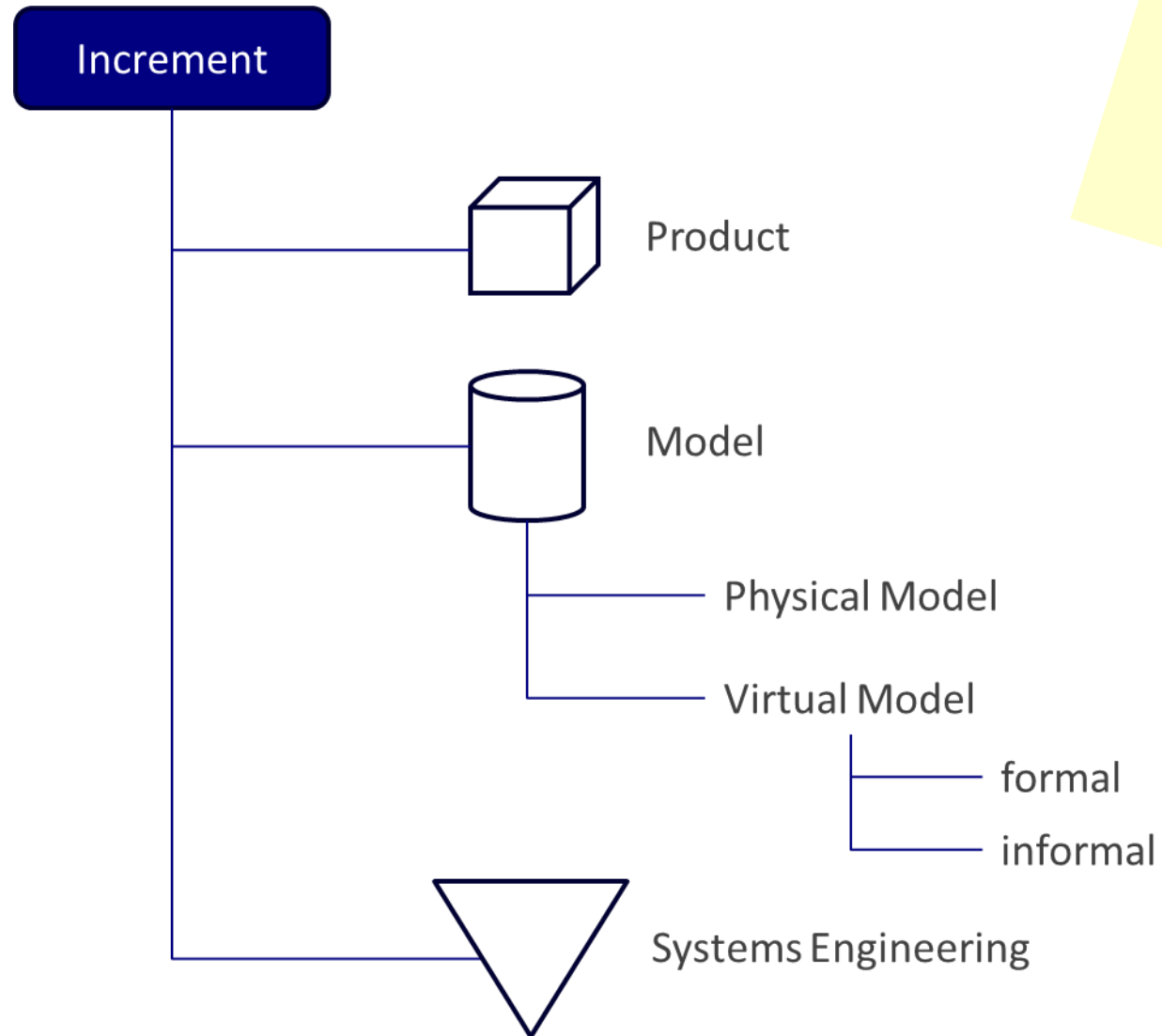
Inkremente in der Hardware

Modulare Architektur

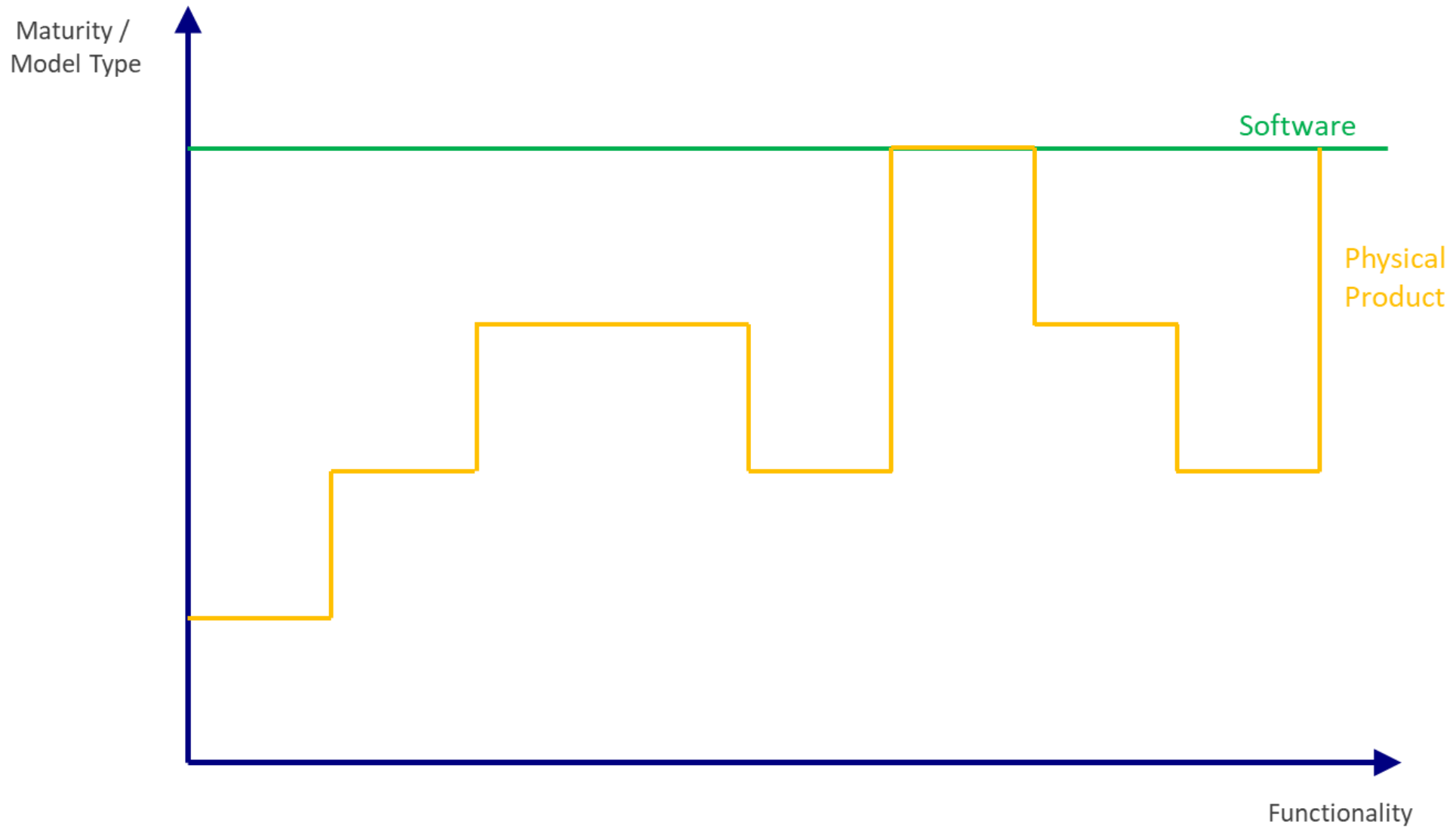
Siehe auch Wikispeed



Arten von Inkrementen

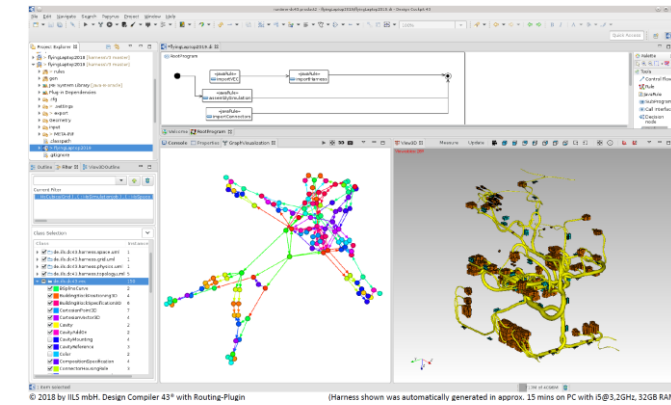


Reifegrad / Modellcharakter



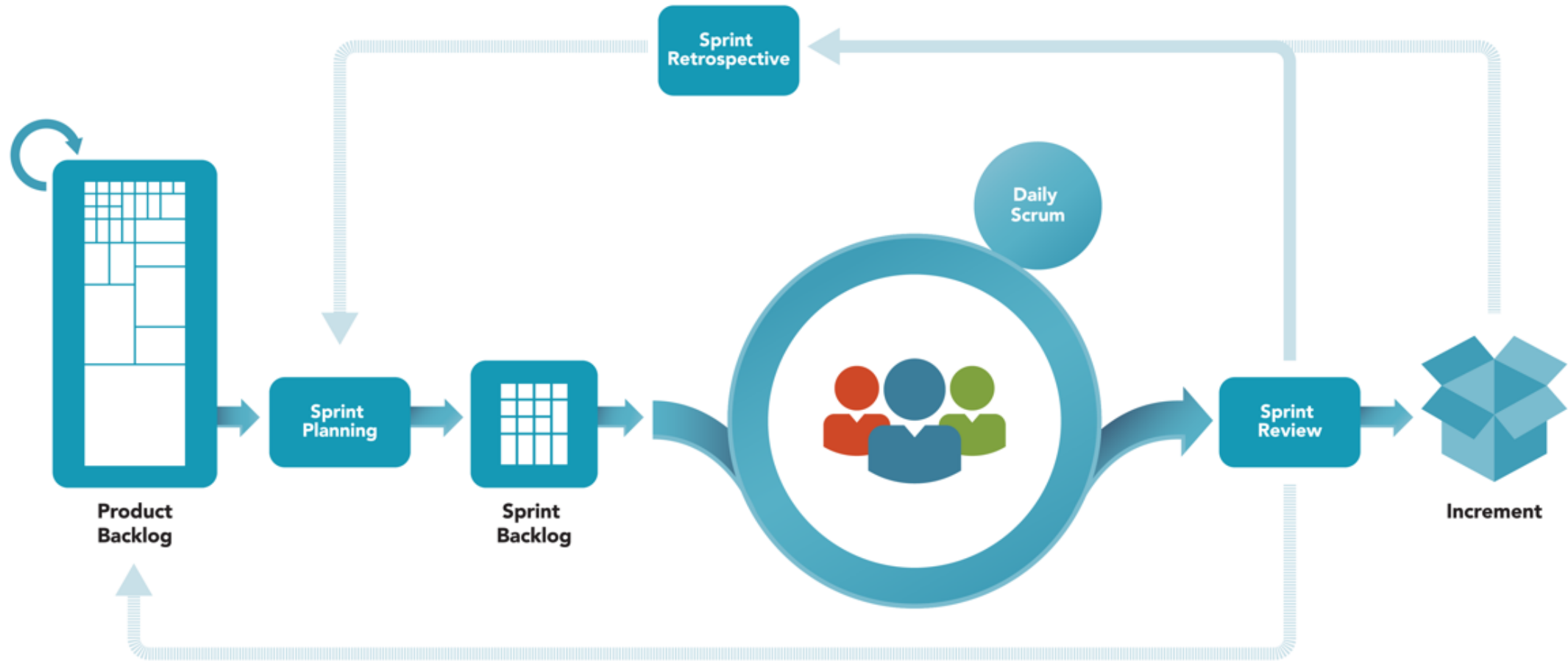
Schnelleres Engineering

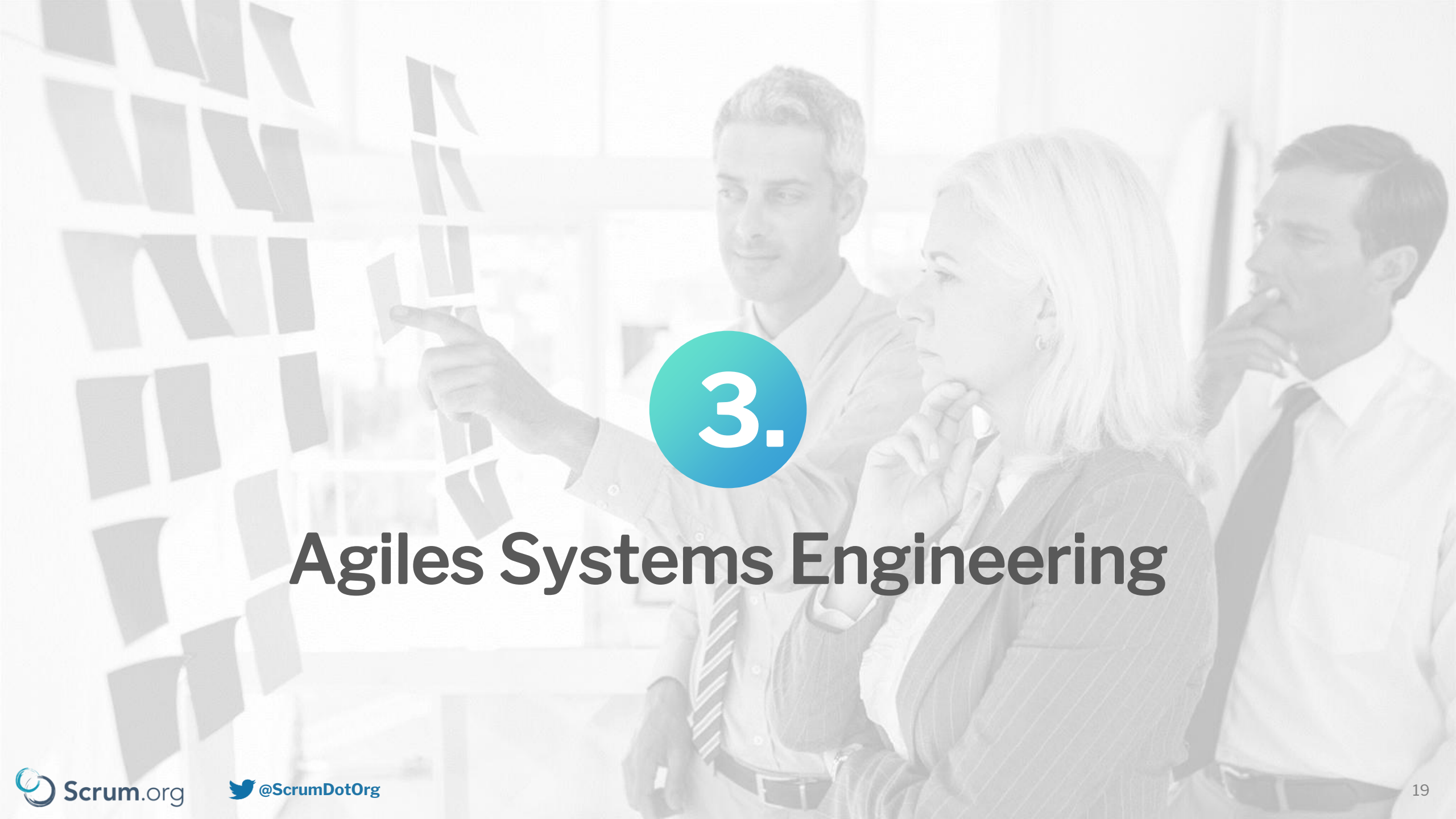
- Simulationen
- Additive Fertigung
- Testautomatisierung (Industrieroboter)
- Design-Automatisierung
- Unterstützende Prozesse (z.B. Einkauf)
- Liegezeiten verringern (Value Stream Mapping)



© 2018 by ILS mbH. Design Compiler 43* with Routing-Plugin (Harness shown was automatically generated in approx. 15 mins on PC with i5@3.2GHz, 32GB RAM)

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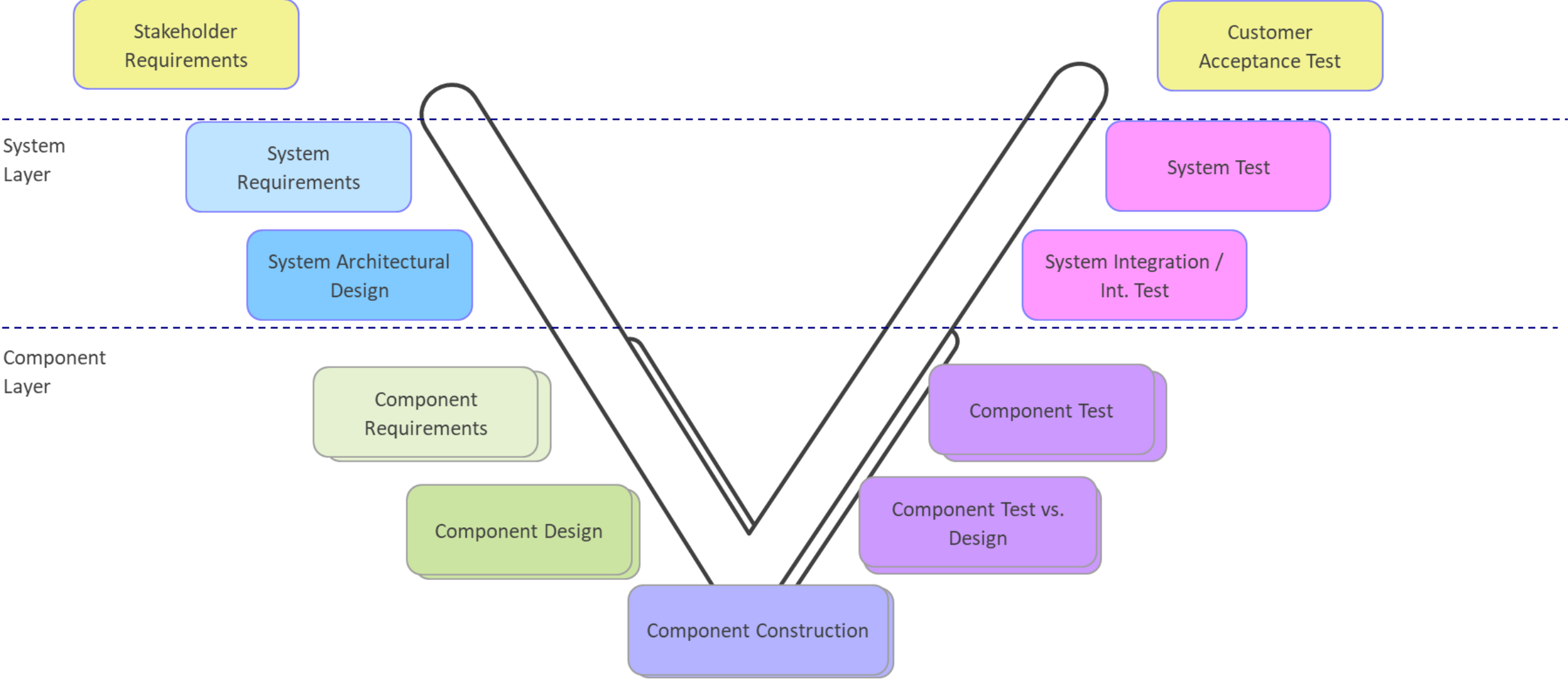


A grayscale background image showing three business professionals in a meeting. A man on the left is pointing at a wall covered in sticky notes. A woman in the center is looking at the notes with her hand on her chin. A man on the right is also looking at the notes with his hand on his chin. A large, teal-to-blue gradient circle with the number '3.' inside is centered over the image.

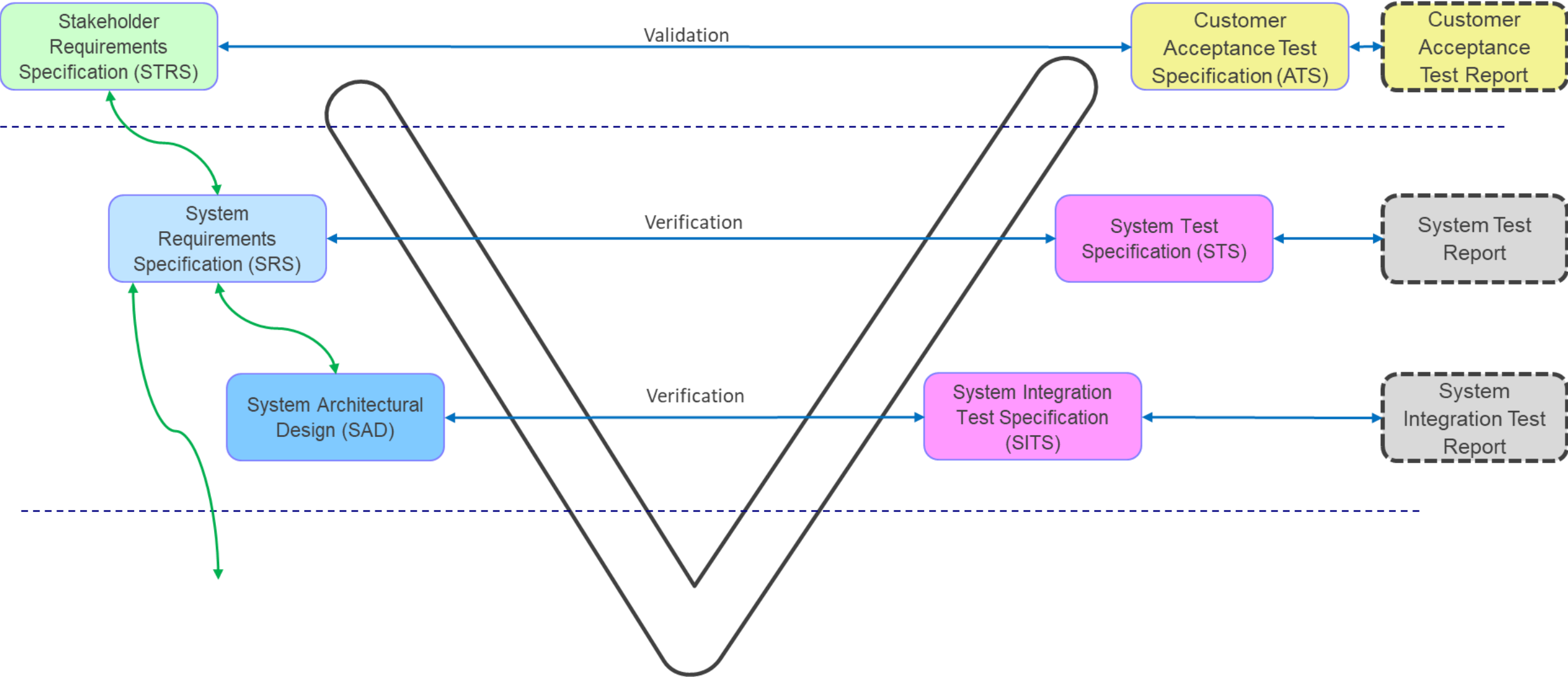
3.

Agiles Systems Engineering

Generisches V-Modell



Traceability

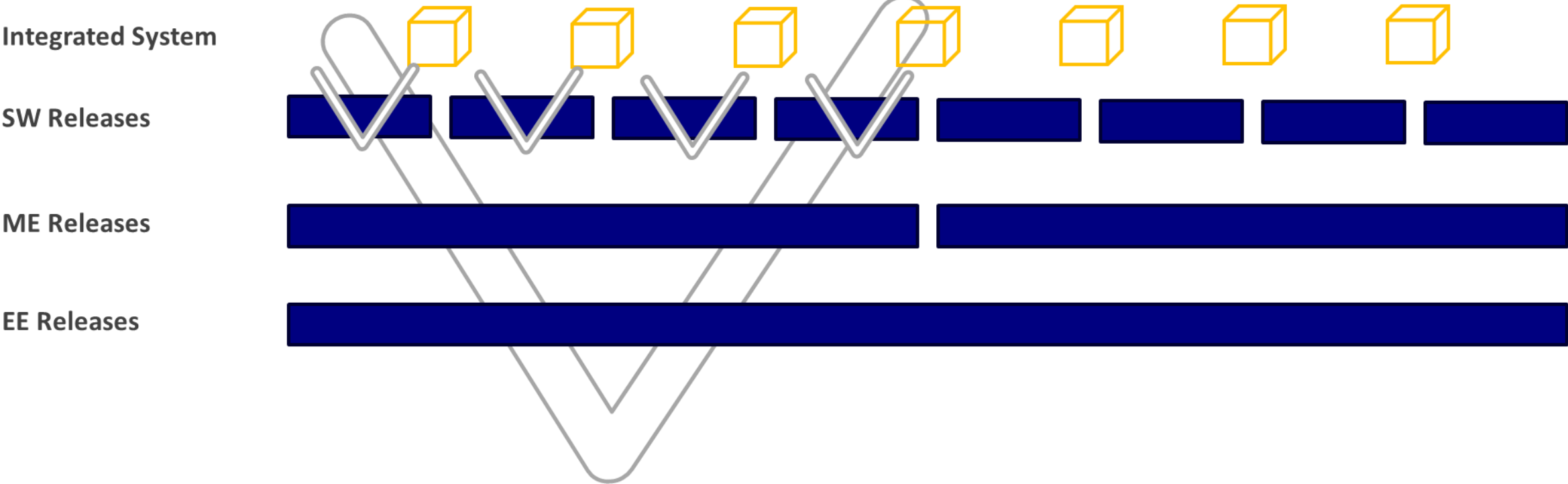


Warum Doku?

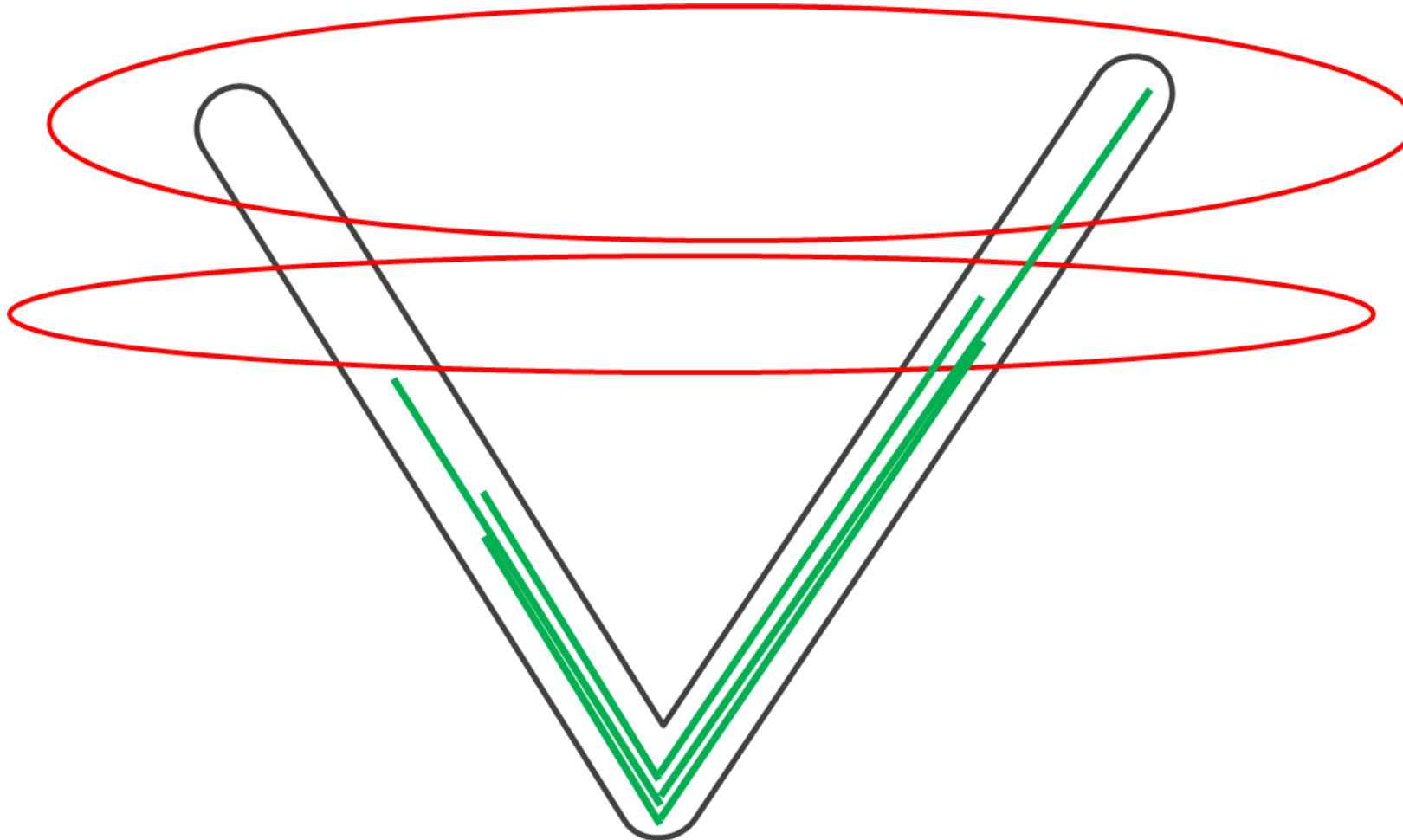
Beispielhafte Fragen:

- Welche Funktionen sind aktuell im Produkt?
- Unser Release 4711 vom 13.12.2007:
 - Welche Kunden nutzen es noch?
 - Welcher Code hat damals welche Requirements umgesetzt?
 - Wie waren damals die Testcases und die Testreports für dieses Release?

Taktung, Synchronisation, Integration



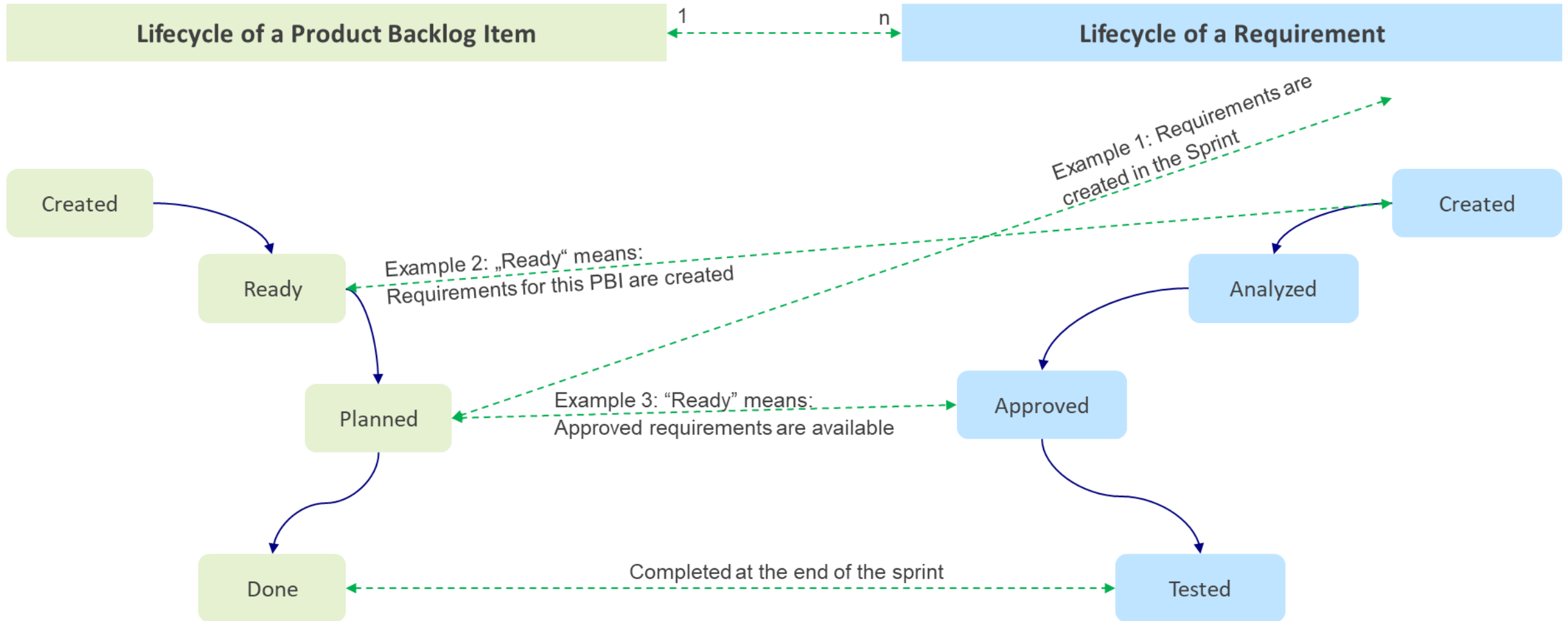
Das V ist ein Konsistenzmodell



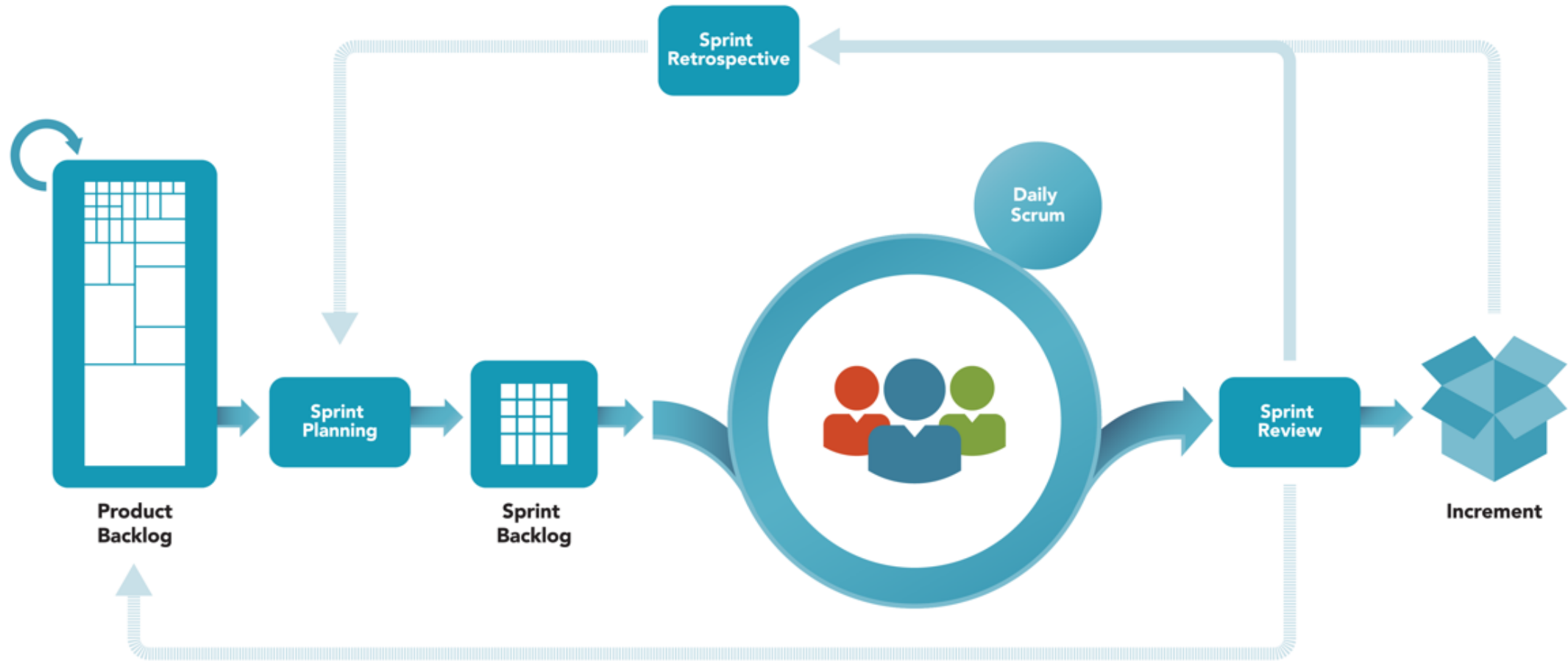
SE-Inkremente

Das V: Immer konsistent, nie Vollständig ;)

Zusammenspiel zwischen PBIs und Requirements



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A grayscale background image of a diverse group of five people (three men and two women) sitting around a table in a meeting. They are looking at laptops and documents. Overlaid on the center of the image is a large blue circle containing the white number '4.'. Below the circle, the text 'Compliance by Design' is written in a bold, black, sans-serif font.

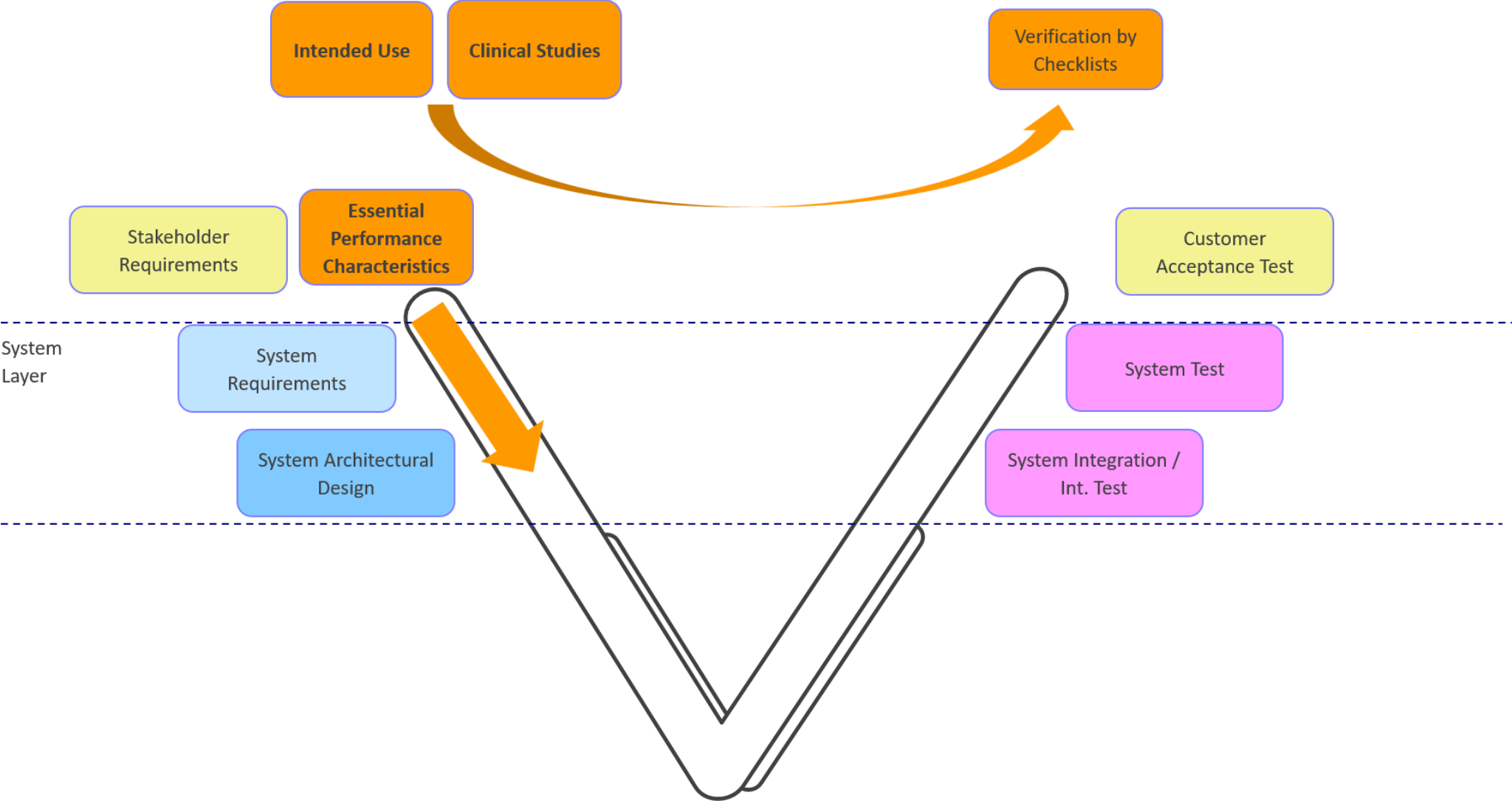
4.

Compliance by Design

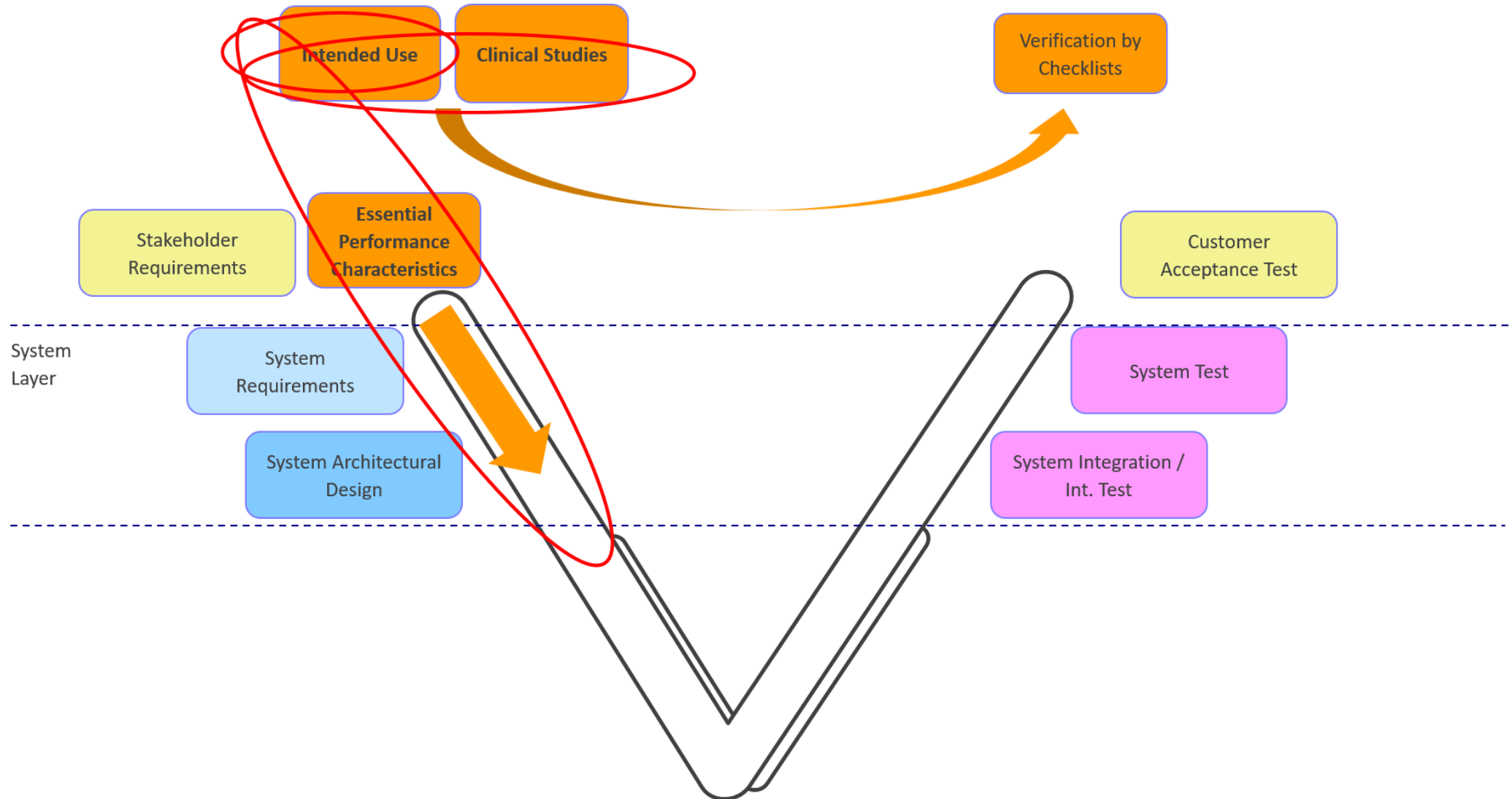
Compliance by Design

- Alle zulassungsrelevanten Nachweise müssen in den Iterationen (Sprints) entstehen.
- Gates werden durch unternehmerische Entscheidungen ersetzt.

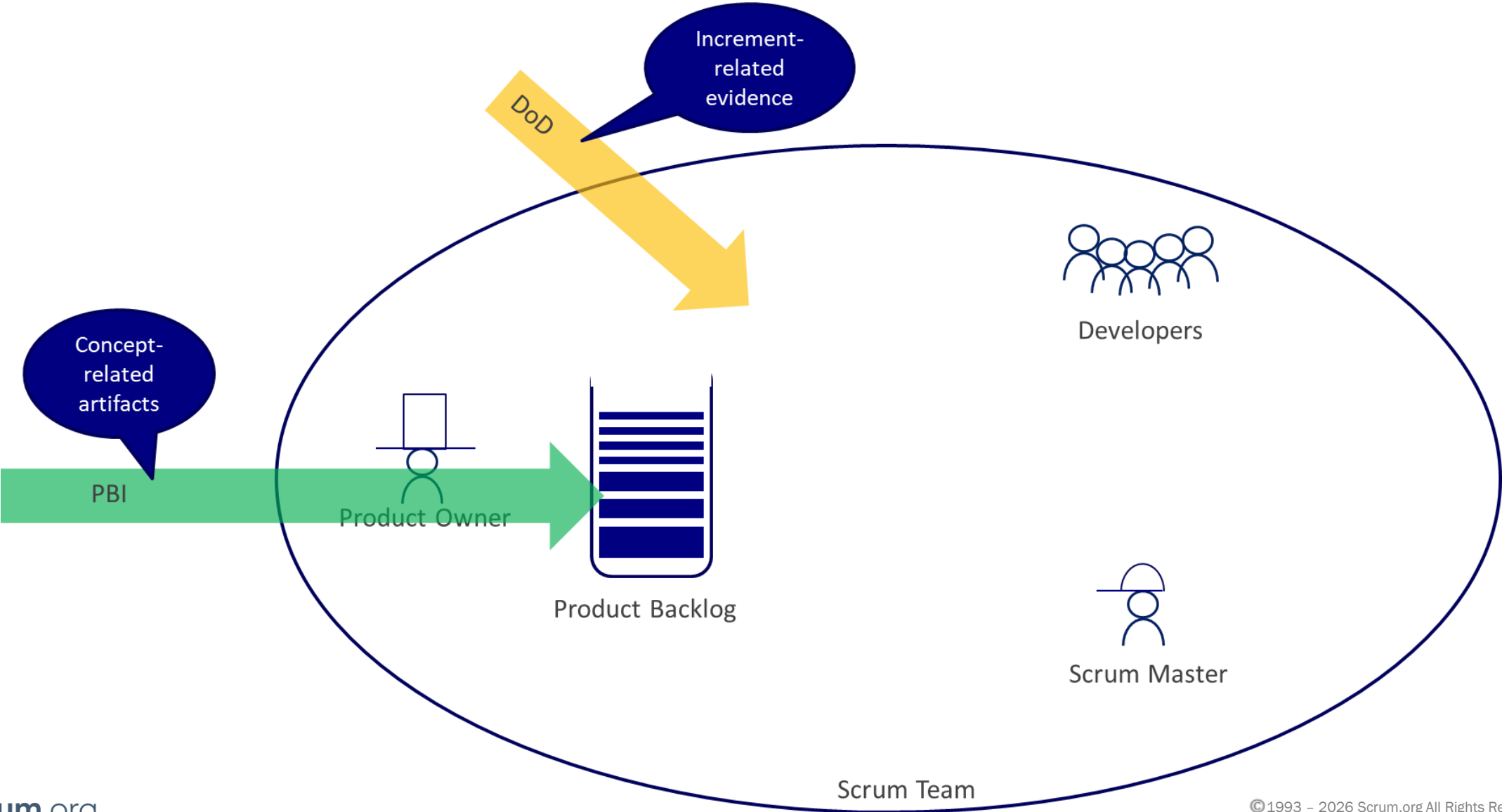
Dokumente vor dem Engineering...



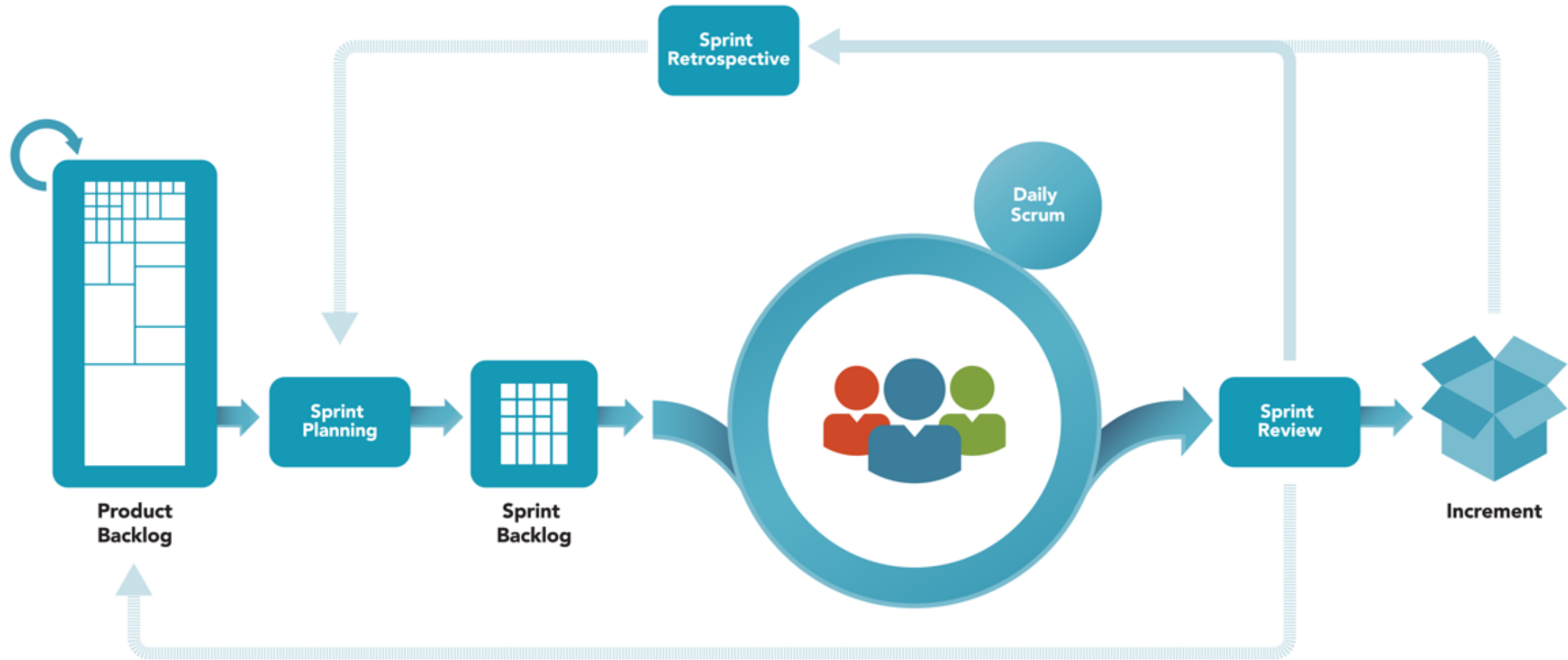
... sollten in die Iterationen einbezogen werden



Regulative Anforderungen: Wege ins Team



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5.

Beispiele

Beispiel Automotive SPICE Projektmanagement (MAN.3)

Genereller Ansatz: geschachtelte Planung, Grobplanung bis SOP, Detailplanung auf mehrere Monate („Etappe“).



- BP1: Define the scope of work
- BP2: Define project life cycle
- BP3: Evaluate feasibility of the project
- BP4: Define and monitor work packages
- BP5: Define and monitor project estimates and resources
- BP6: Define and monitor required skills, knowledge, and experience
- BP7: Define and monitor project interfaces and agreed commitments
- BP9: Ensure consistency
- BP10: Review and report progress of the project

Beispiel ISO 13485 (QM für Medizingeräte)

During design and development planning, the organization shall document:

- a) the **design and development stages**;
- b) the **review(s) needed** at each design and development stage;
- c) the verification, validation, and design transfer activities that are appropriate at each design and development stage;

...

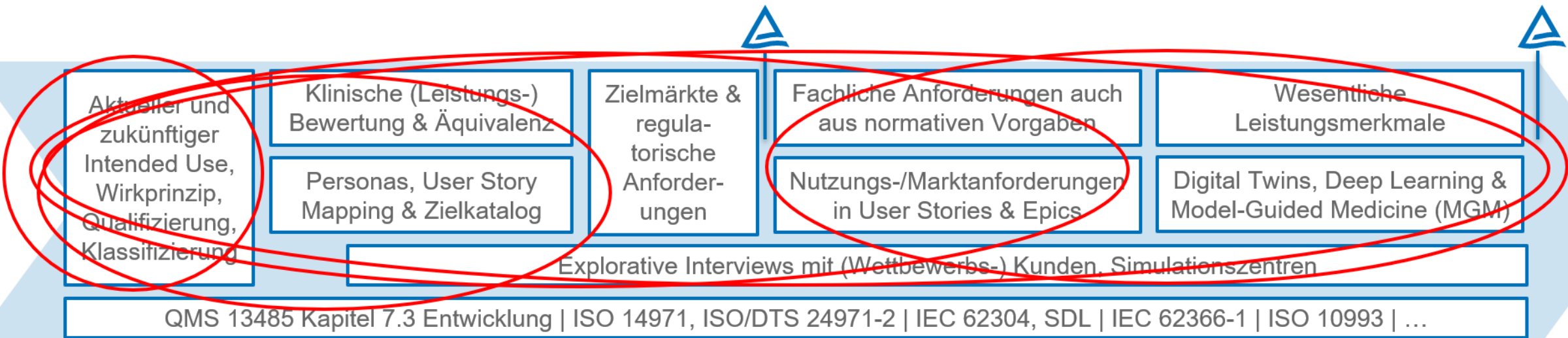
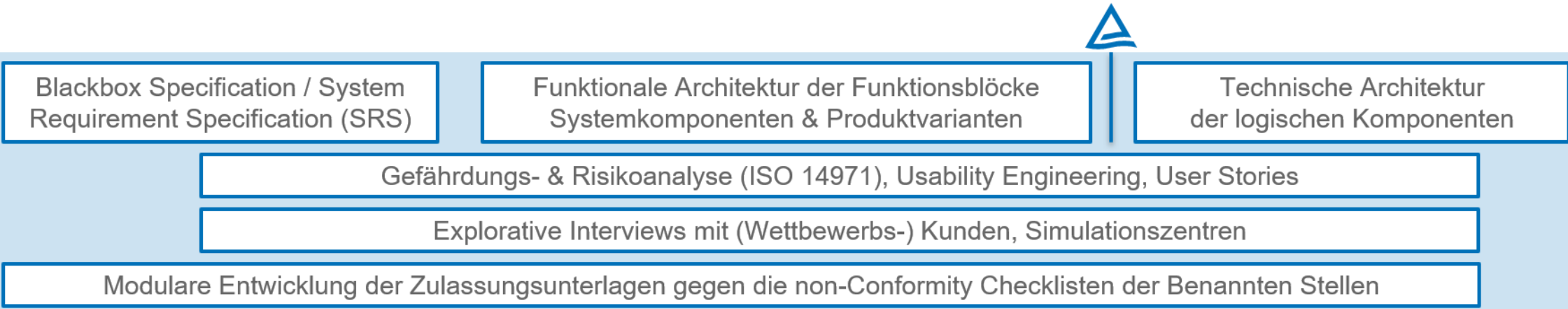
At suitable stages, systematic **reviews of design and development** shall be performed in accordance with

planned and documented arrangements to:

- a) **evaluate the ability** of the results of design and development **to meet requirements**;
- b) **identify and propose necessary actions**.

Transparency,
Inspection,
Adaptation

Beispiel (Quelle: TÜV Rheinland / Joachim Pfeffer)



Beate Bender, Kilian Gericke (2021): Pahl/Beitz Konstruktionslehre: Methoden und Anwendung erfolgreicher Produktentwicklung; Springer
VDI 221: Entwicklung technischer Produkte und Systeme
AAMI TIR45 (2023): Guidance on the use of AGILE practices in the development of medical device software

Obacht

Mehr
erfahren?

Certified Agile Systems Engineer

19. November 2026 – Stuttgart



Promo Code für Euch: SOWC580

Fragen

Vernetzt Euch mit der Scrum.org Community



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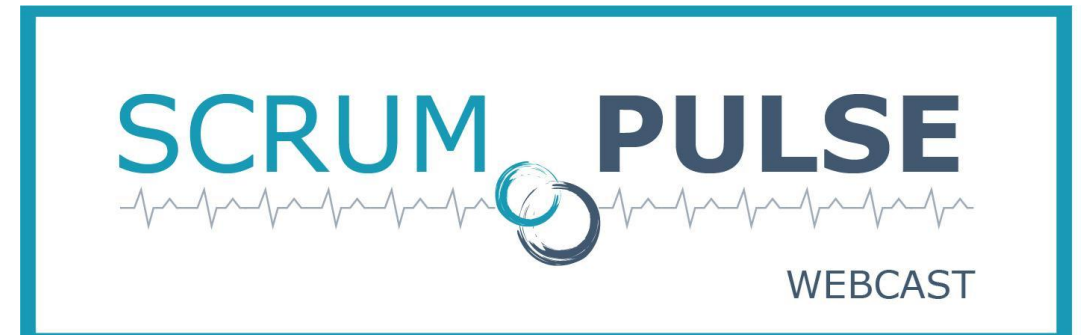
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Vielen lieben Dank!