SAFE AND SOUND?

Experiences in ASPICE assessments on projects working with SAFe setup

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SAFe and sound?
Agenda

▶ Robert Bosch GmbH short presentation

▶ Misconceptions and motivation

▶ SAFe in a nutshell

▶ Key elements of SAFe, typical work products and possible usage in ASPICE context

▶ Assessment experiences

▶ Fazit

Speaker: **Livia Franzitta**

ASPICE Competent Assessor

CMMI Lead Appraiser (1.3)

SAFe Program Consultant (SPC)

ISO Auditor (ISO 27001, ISO 20000)

Process consultant

Speaker: **Valeria Franzitta**

ASPICE Competent Assessor

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Director SW Quality Mobility Solutions

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Bosch – Corporate presentation
Technology to enhance quality of life

Bosch is one of the world's leading international providers of technology and services

125 Engineering locations worldwide, in a single network

Over the past years, Bosch has invested several **billion euros** in research and development

Our objective: To develop innovative, useful, and exciting products and solutions to enhance quality of life – technology that is **"Invented for life"**

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Bosch – Corporate presentation
A global network

$402,800^*$

Bosch associates
make these solutions
possible

60^*

countries –
440 regional
subsidiaries

Four business sectors

Mobility
Solutions

Industrial
Technology

Energy & Building
Technology

Consumer
Goods

✓ Including sales and service partners, Bosch's global manufacturing and sales network covers nearly every country in the world.

* As of 12.19

Preliminary, rounded figures based on internal accounting

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SAFe and sound?
Misconception

▶ Even if the topic has been discussed a lot in the community, there is still the misconception that ASPICE:

   ▶ requires a waterfall model

   ▶ gives a rigid process

   ▶ requires extensive documentation

   ▶ is incompatible with the VUCA world

▶ and Agile methodology:

   ▶ restricts documentation to only source-code

   ▶ does not use or require processes

   ▶ only works for small endeavours

Generally projects working in agile manner fear an ASPICE assessment

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SAFe and sound?
Motivation

▶ Also at Bosch more and more projects work with agile and scaled agile set ups, with the aim to better fulfil customer requirements by employing faster learning cycles and short iterations.

▶ To scale up agile for complex organizations and projects, SAFe (Scaled Agile Framework) is a common approach, used also at Bosch for complex and big development project.

▶ In the automotive domain, Automotive SPICE® is a common requirement for software and system development

SAFe and ASPICE: is it possible?

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SAFe and sound?
When to go agile?

▶ For projects in the complex area of the Stacey categorization no stable, fine granular mid to long term predictability is given.

▶ Agile methods do not require long term predictability and allow to cope with the rapidly changing environment.

▶ Agile methods encourage empowered teams (e.g. Scrum Teams). SAFe is a framework to coordinate projects comprised of many agile teams.
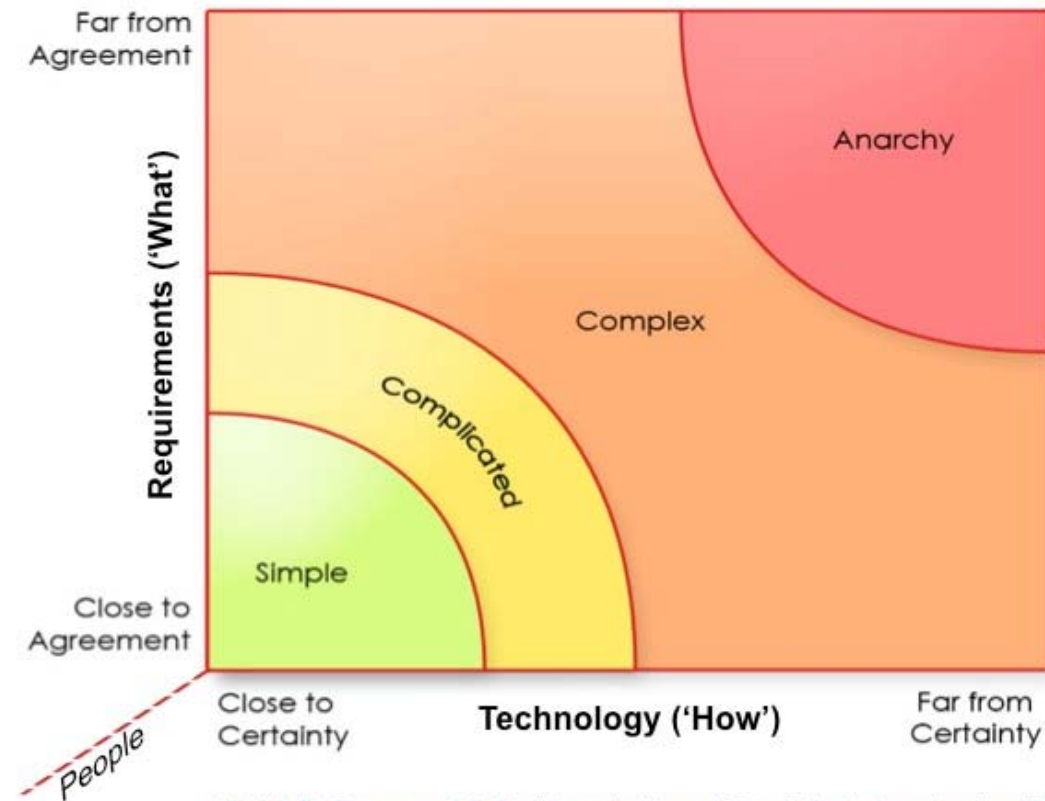
(Ralph D. Stacey matrix for "Complexity and Creativity in Organizations")

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SAFe and sound?
SAFe in a Nutshell

Regular Program Increment (PI)-Workshops (~8 weeks)

SAFe Roles

Scrum Roles
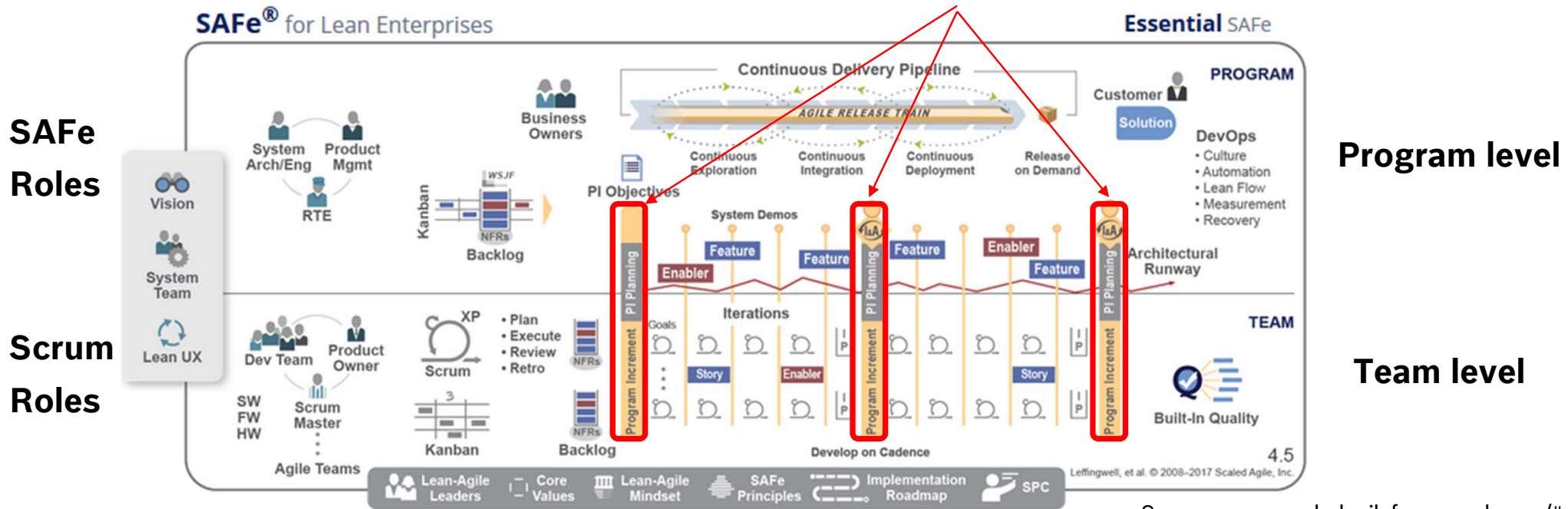
Source: www.scaledagileframework.com/#

Program level

Team level

SAFe is a framework for working agile on program level with many teams and high complexity/novelty.
Goal: Release of shippable SW at end of each Program Increment (8 weeks) with incremental customer value.

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SAFe and sound?
Essential SAFe

Real Agile Teams and Trains — 2
System Demo — 6
Cadence and Synchronization — 3
DevOps and Releasability — 5
Inspect & Adapt — 7
Architectural Runway — 9
PI Planning — 4
IP Iteration — 8
Lean-Agile Principles — 1
Lean-Agile Leadership — 10

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SAFE PRINCIPLES

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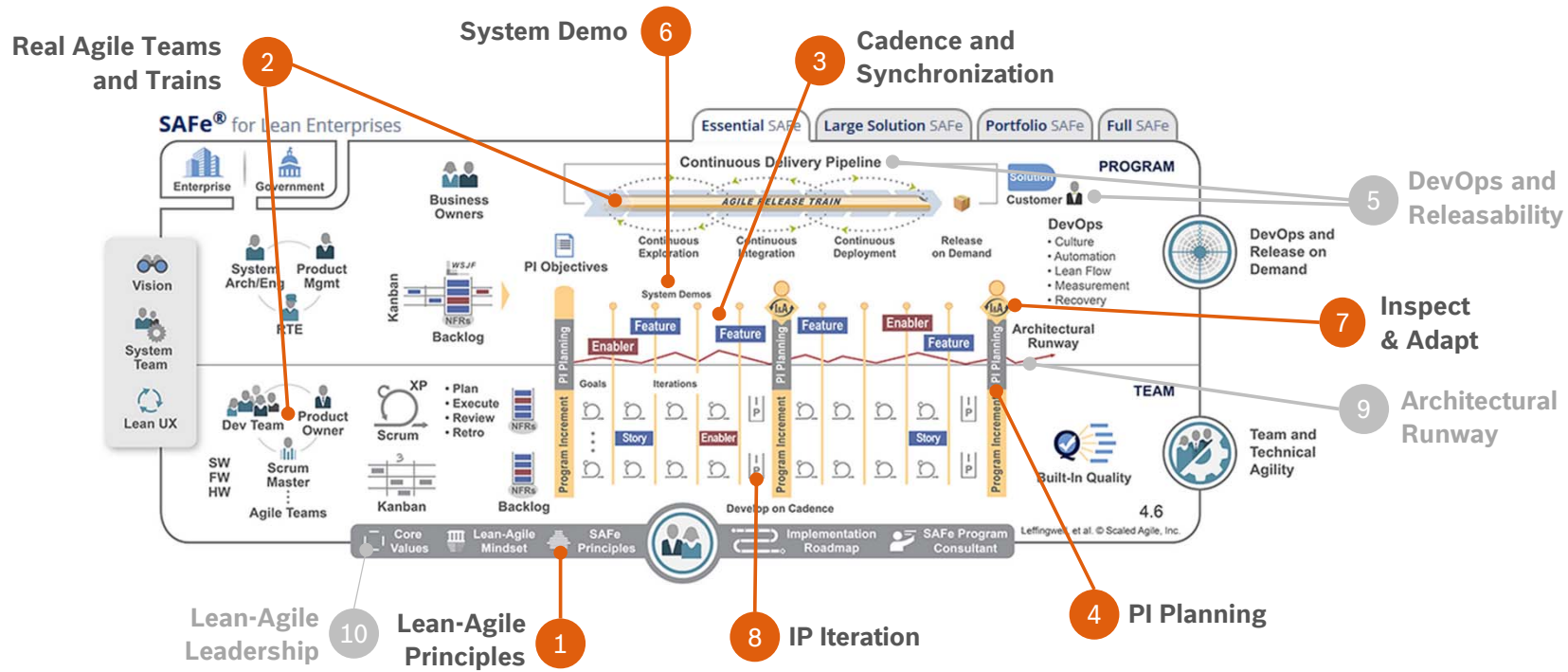
SAFe and sound?
SAFe® Values, Principles and Practices

House of Lean

Value in the shortest
sustainable lead time

SAFe® Lean-Agile Principles

#1 - Take an economic view
#2 - Apply systems thinking
#3 - Assume variability; preserve options
#4 - Build incrementally with fast, integrated learning cycles
#5 - Base milestones on objective evaluation of working systems
#6 - Visualize and limit WIP, reduce batch sizes, and manage queue lengths
#7 - Apply cadence, synchronize with cross-domain planning
#8 - Unlock the intrinsic motivation of knowledge workers
#9 - Decentralize decision-making

Agile Manifesto

We are uncovering better ways of developing software by doing it and helping

others do it. Through this work we have come to value:

Individuals and interactions over processes and tool

Working software over comprehensive documentation

Customer collaboration over contract negotiation

Responding to change over following a plan

That is, while there is value in the items on the right, we value the items on the left more.

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TEAMS AND ROLES

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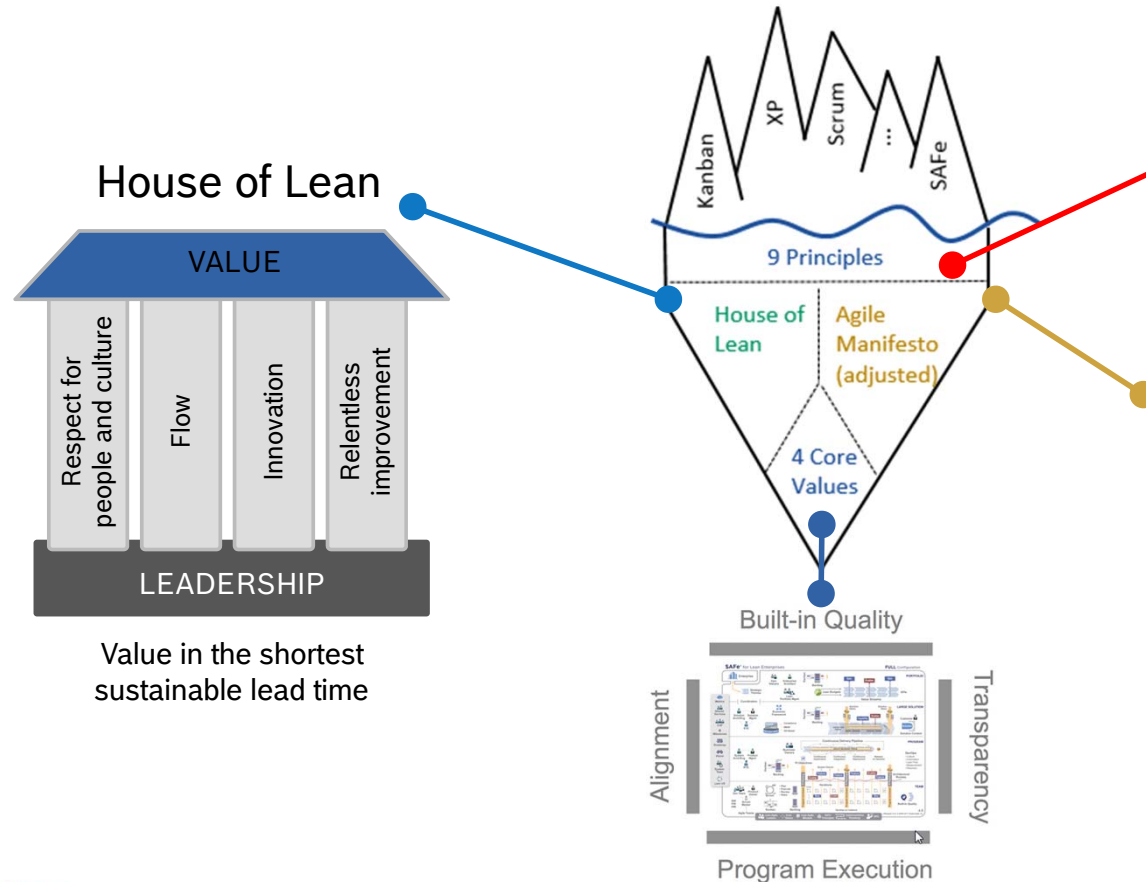
SAFe and sound?
Teams and roles

▶ In a program multiple teams need to work together as a team of agile teams to deliver value

▶ In SAFe this team of agile teams is called an **Agile Release Train (ART)**

▶ Cross functional teams include all the skills needed to define, deliver and maintain value

▶ Teams iterate with agile and SAFe scaled practices (scrum, Kanban, XP ….)

▶ Feature teams deliver end to end value

▶ In case of complicated subsystems component teams may be created to build specialized components

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SAFe and sound?
Agile Release Train Roles

Release Train Engineer

Acts as the Chief Scrum Master (CSM) for the train.

System Architect/Engineering

Align ARTs to a common technological and architectural vision.

Product Management

Responsible for customer needs. Owns the vision and product backlog, prioritizes features for the best economic outcome.

Example: Product Management@ETAS as minimum two
- Product Manager as foreign minister (Außenminister) with Product Manager Team (optional)
- Chief Product Owner (CPO) as minister of the interior (Innenminister)

Business Owners

A small group of stakeholders who have financial, governance, fitness for purpose and ROI responsibility.

Customer

Consumes the work of an ART. They are the ultimate deciders of value.

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SAFe and sound?
ASPICE Assessment practice

▶ SAFe/agile roles must be included in the assessment interviews!

▶ Identification of the interviewees may become tricky: support of the RTE is needed.

▶ MAN.3 interview may become overcrowded.

▶ In the engineering interviews the product owners should be invited, since he/she defines stories (along with other team members) and prioritizes the team backlog to streamline the execution of program priorities, besides maintaing the conceptual and technical integrity of the features/functionalities the team is responsible for.

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CADENCE AND PI PLANNING

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SAFe and sound?
Program Increment Planning – Alignment of all teams

Program Increment (PI)

▶ The ART works in a time box called Program Increment (PI)

▶ PI is typically 5 iterations (aka sprints) long

▶ The ART synchronizes its work with PI Planning

PI Planning

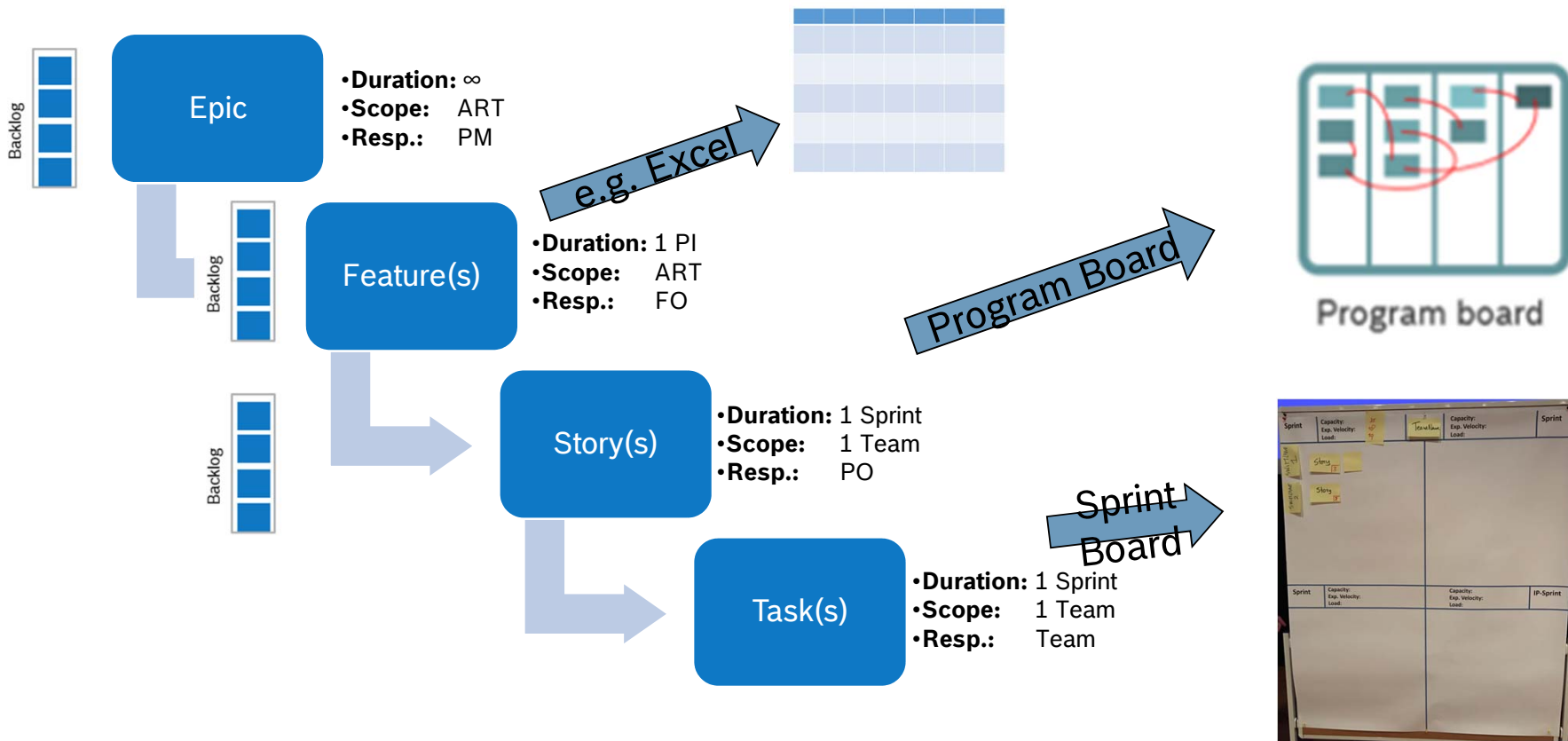▶ Two days every 8-12 weeks

▶ Everyone attends in person if possible

▶ Product Management owns feature priorities

▶ Requirements and design emerge

▶ Development team owns story planning and high-level estimates: creation and responsibility

Result: A committed set of **program objectives** for the next PI

Synchronizing with PI Planning

Cadence-based PI Planning meetings

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SAFe and sound?
Transparent and reliable planning over time in connection to WBS

Epic
- **Duration:** ∞
- **Scope:** ART
- **Resp.:** PM

Feature(s)
- **Duration:** 1 PI
- **Scope:** ART
- **Resp.:** FO

Story(s)
- **Duration:** 1 Sprint
- **Scope:** 1 Team
- **Resp.:** PO

Task(s)
- **Duration:** 1 Sprint
- **Scope:** 1 Team
- **Resp.:** Team

e.g. Excel

Program Board

Program board

Sprint Board

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SAFe and sound?
The roadmap guides the delivery of the features over time

Example **January** v1.0 **April** v1.5 **July** v2.0

PI 1

Features

▸ Road Rage Ported (part I)

▸ Brickyard port started (stretch obj. to complete)

▸ Distributed platform demo

▸ ALL GUIs for both games demonstrable

▸ New features (see prioritized list)

— **Stretch Objectives** —

▸ Demo of Beemer game

High confidence

PI 2

Features

▸ Road Rage Completed (single user)

▸ Brickyard Ported (single user)

▸ Road Rage multiuser demonstrable

▸ First multiuser game feature for Road Rage

Medium confidence

PI 3

Features

▸ Road Rage (Multiuser) first release

▸ Brickyard Ported multiuser demo

▸ New features for both games (see backlog)

Marquee features only

Forecast

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SAFe and sound?
Transparent and reliable plan of the needed activities for each PI

▶ **Clear targets:** Program and Team PI Objectives

▶ **Predictability:** The Teams plan their next sprints according to their velocity

▶ **Bottle neck management:** Discuss and solve dependencies with other Teams

  ▶ Critical path visible for each PI in the program board

▶ **Transparency:** Create Program Board

  ▶ The development activities are identified, estimated, planned and monitored.

  ▶ What is planned for a PI but not achieved is communicated to customer/stakeholder and goes back to PI backlog to be considered in next release.

▶ **Risk Management:** Ask for help in a Management Review

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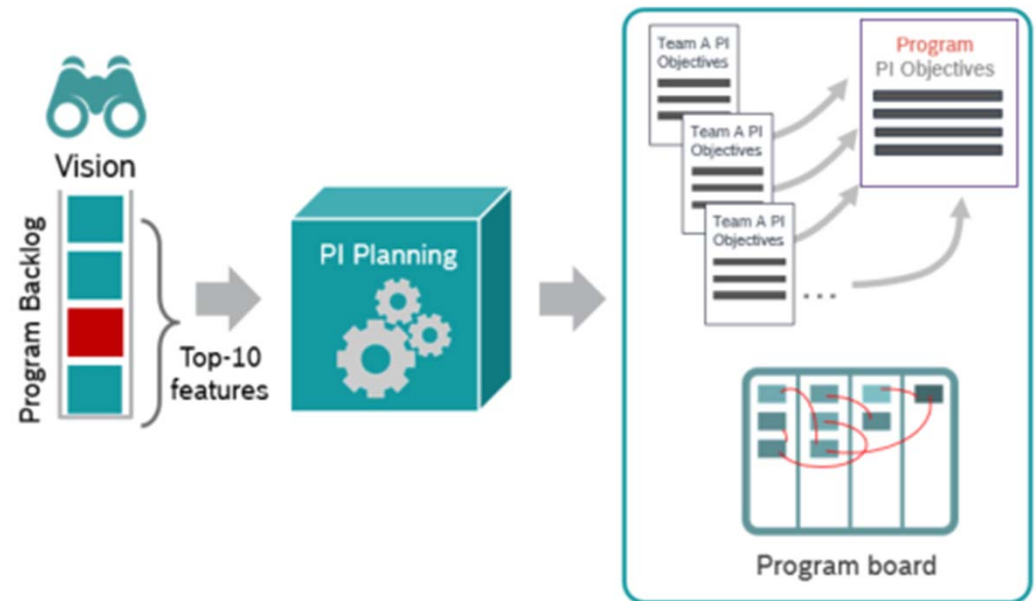
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ASPICE Assessment practice

▶ For each PI the ART teams calculate story points, cut down the stories into sprints, using story points for the estimation. → Evidence for MAN.3 BP5

▶ Weekly tracking of issues in ART Sync. → Evidence for MAN.3 BP4, BP7, BP8, BP9

▶ Daily tracking in Stand-up meetings at team level. For each feature a feature owner who tracks the overall features, also the aggregated story points. → Evidence for MAN.3 BP5, BP8

▶ Critical path represented for each PI, overall critical path broken down depending on the project milestones (milestones are tracked, and the critical path towards them). Overall project plan tracks the dependencies among activities in the milestones → Evidence for MAN.3 BP7 and BP8

▶ Risk management by each team for each PI in PI Planning. Risks formulated in form of impediments, that is whatever is impairing the work achievement. Risk management at overall project level on regular basis. → Evidence for MAN.3 BP5 BP9

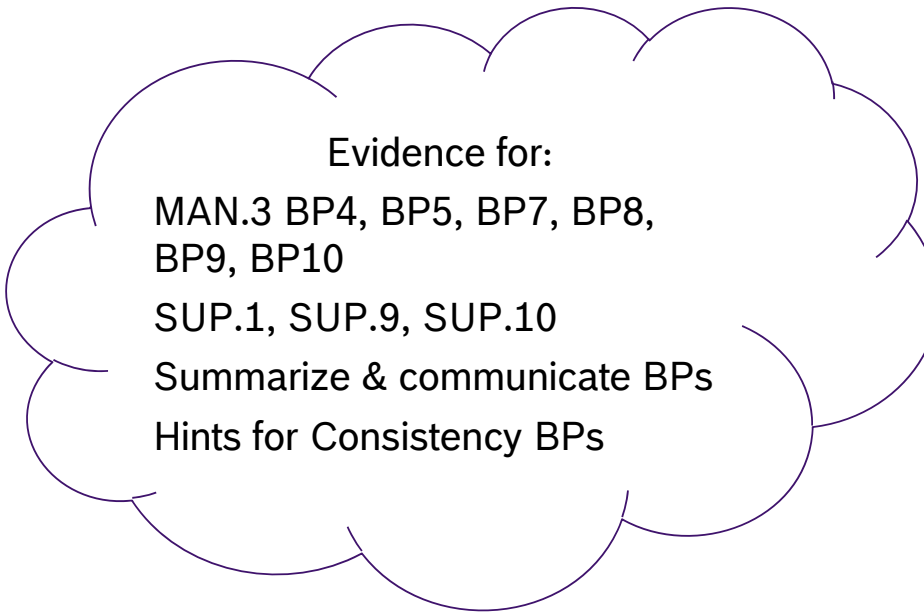▶ In each PI a review and retrospective are done. → Evidence for MAN.3 BP9, BP7, BP9, BP10

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SYNCHRONIZATION AND CONSISTENCY

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SAFe and sound?
Synchronization and consistency

▶ Program level
  ▶ ART Sync
  ▶ PO Sync
  ▶ Scrum of scrums
  ▶ Prepare for PI Planning
  ▶ PI Planning
  ▶ System Demo
  ▶ Inspect & Adapt

Evidence for:

MAN.3 BP4, BP5, BP7, BP8, BP9, BP10

SUP.1, SUP.9, SUP.10

Summarize & communicate BPs

Hints for Consistency BPs

▶ Team level
  ▶ Iteration planning
  ▶ Daily Stand-up
  ▶ Iteration Review
  ▶ Backlog refinement
  ▶ Iteration Retro

Program events create a closed loop system to keep the train on the tracks

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SAFe and sound?
Compliance concerns in continuous improvement

▶ System Demo

  ▶ Show all the features that the ART developed during the PI

  ▶ Assess results of current compliance work and automated tests

  ▶ Demonstrate compliance status

▶ Quantitative Management

  ▶ Show trends towards meeting compliance solution and developed system

  ▶ e.g. % code coverage, % requirement coverage, peer review status, % test coverage

▶ Retrospective

  ▶ Identify issues to assess during problem solving workshop

▶ Problem solving workshop

  ▶ Root cause analysis to address systemic problems

  ▶ E.g. Are we sufficiently addressing compliance goals?

  ▶ E.g. Are policies or procedures inhibiting development?

Inspect & Adapt

The current state of the solution is demonstrated and evaluated by the train

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SAFe and sound?
Our experience

▶ It is beneficial to have a background on SAFe for the lead assessor, e.g. have participated to Leading SAFe, read the white paper ....

▶ It is very beneficial if the assessment team has read the white paper on SAFe.

▶ It is strongly recommended that at least one Co-assessor has practical experience on SAFe.

▶ A presentation (or a demo) on the way the project is living SAFe is recommended.

▶ The most impacted processes in an Automotive Spice assessment are MAN.3 and the supporting processes and the level 2.

▶ Not every SAFe implementation is the same.

▶ In our experience for all the assessments that we have conducted on projects working with SAFe setup the projects scored quite well

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By working with SAFe it is possible to fulfil the expectations of ASPICE while staying agile.
SAFe provides the needed transparency in the management of the project relying on:

- ▶ repeating short-term commitments from agile teams and teams of teams that result in committed objectives for every program increment
- ▶ built-in quality as one core value ensuring that every element and every increment of the solution reflects quality standards throughout the development
- ▶ focusses on delivering more substantial value reliably, efficiently and continuously.

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THANK YOU

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