

When things get really big!

Transformation in a 10K+ peeps
engineering environment

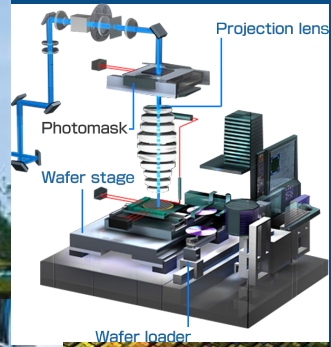


Hans van Herwaarden

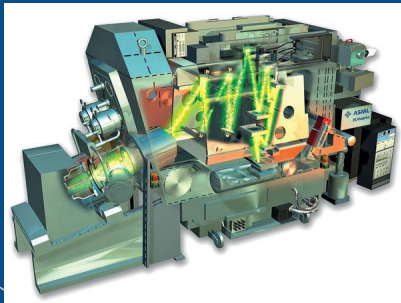
Global Virtual SAFe Summit, October 2020



The company...



...extreme tech...



...bending the laws of physics

Growth...

1984



From 100
to > 23,000
employees

Very
R&D
intensive

45% growth
in last
2,5 years

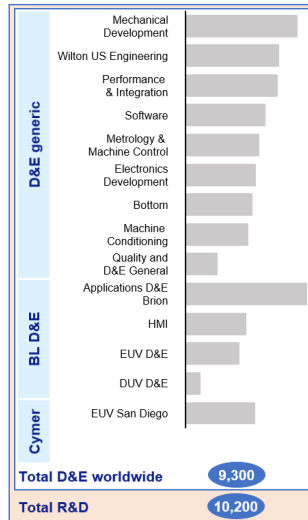
2019



...accelerating growth!

R&D intensive...

D&E within ASML organization



D&E footprint: 5 development locations worldwide in 'Hub and spoke' model for technical competences



San Jose	San Diego	Wilton	VHV/EIN/Delft	China / Taiwan
<ul style="list-style-type: none"> Pattern fidelity control (Brion) Electron beam metrology 	<ul style="list-style-type: none"> Tin droplet generation & positioning Plasma generation & energy control Spectrally pure EUV collection 	<ul style="list-style-type: none"> Reticle positioning and handling Alignment & levelling sensors Yieldstar optics 	<ul style="list-style-type: none"> Overall scanner Yieldstar Optimization software 	<ul style="list-style-type: none"> Pattern fidelity control Electron beam metrology
System functions (examples)				
<ul style="list-style-type: none"> Computational lithography (Brion) Electron beam source/control 	<ul style="list-style-type: none"> Source (Plasma & Laser Physics) 	<ul style="list-style-type: none"> Optics Flatness Glass and metal connections 	<ul style="list-style-type: none"> All shared competences 	<ul style="list-style-type: none"> Technical competences (examples)

...close to 50% of all employees

The challenges...



Fragmentation and over-specialization



Instability of teams means engineers cannot invest the necessary time and energy, and they don't stay together long enough to learn and adapt new solutions to the lessons learned



No stable work backlog and **frequent changing priorities**. Continuous stream of **new requests** and **disturbances** which defocus the teams in their daily work and don't allow the team to **finish what they started**

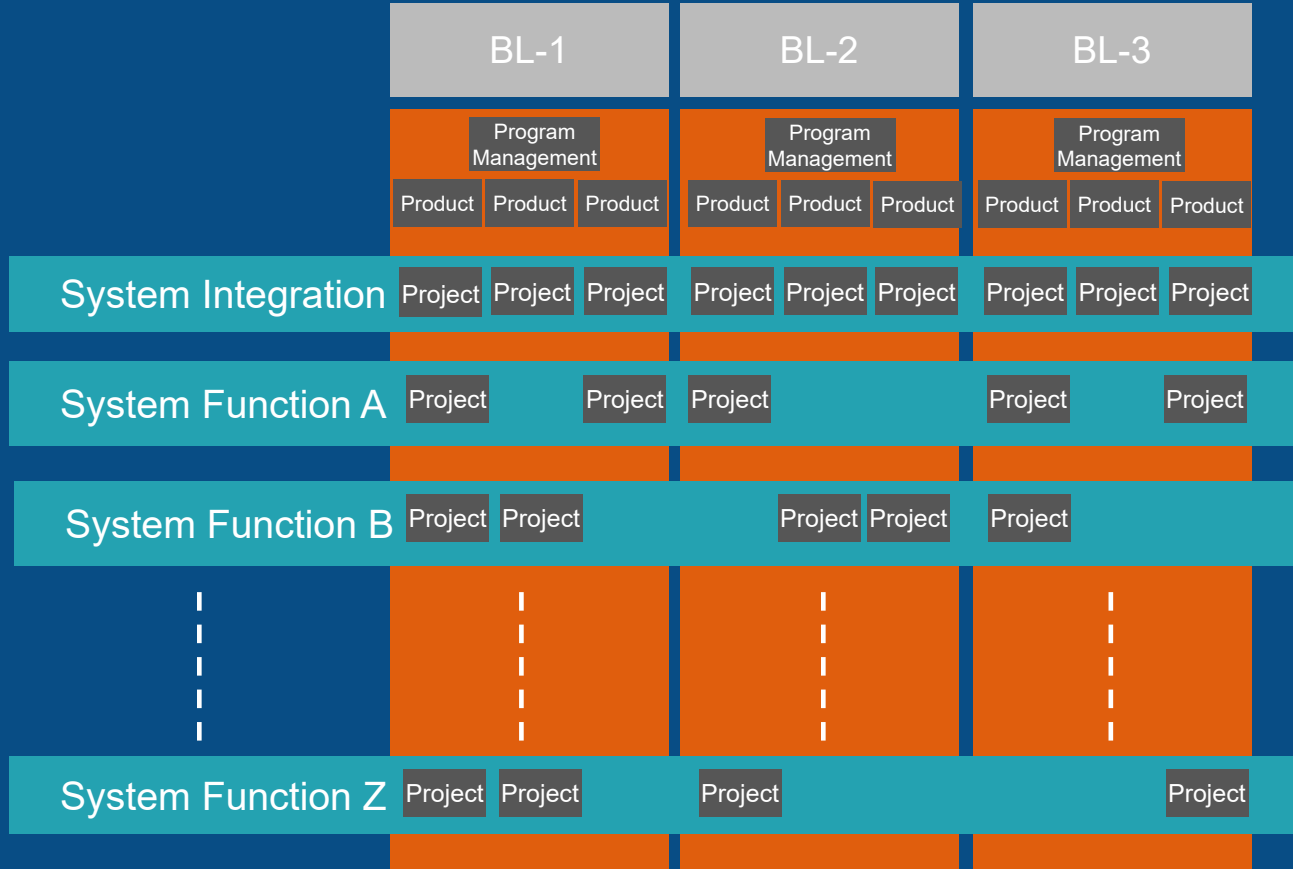


Internal competition for resources due to **lack of decision making** leading to overloading the teams beyond their capacity and **high fragmentation of resources over different projects**



Linear strategy in programming and budgeting, 12-36m budgets, high belief in forecast ability ignoring variability and technology unknowns

The challenges...



Shifting gears from project to product...

Current Way of Working

Teams formed around a project

People are moved from project to project. In many projects the teams are unstable which is not supporting E2E responsibility.

Project team size (5-40 engineers)

Teams formed for a specific project and changed during the course of the development. Large number of projects.

TAP

Yearly intense budget allocation over programs, projects. Many fluctuations in between resulting in high administrative load.

Long cycles of delivery

Strongly depending on project and stakeholder involvement, this varies per project and project type

Project managed teams

PL in charge of team, focus on project results

New Way of Working

1

Work brought to stable teams

Team in charge of module development increments, tasks are brought into the team. People remain working in and with the team for more than a year.

2

Larger stable team co-located (50-120 engineers)

Multi disciplinary and co-located teams taking ownership for part of the product for multiple product generations (module & function).

3

Quarterly work prioritization

4x year portfolio and backlog alignment. Discussion on work instead of people allocation. Low frequent adjustment of team capacity based on business priorities

4

Continuous integration & incremental delivery

Continuous integration by incremental deliveries and simulations. Fail quickly, learn fast. Rapid decision and learning cycles.

5

Self optimizing teams

Teams are self-organizing and self-optimizing, team measures and improves their own performance and efficiency.

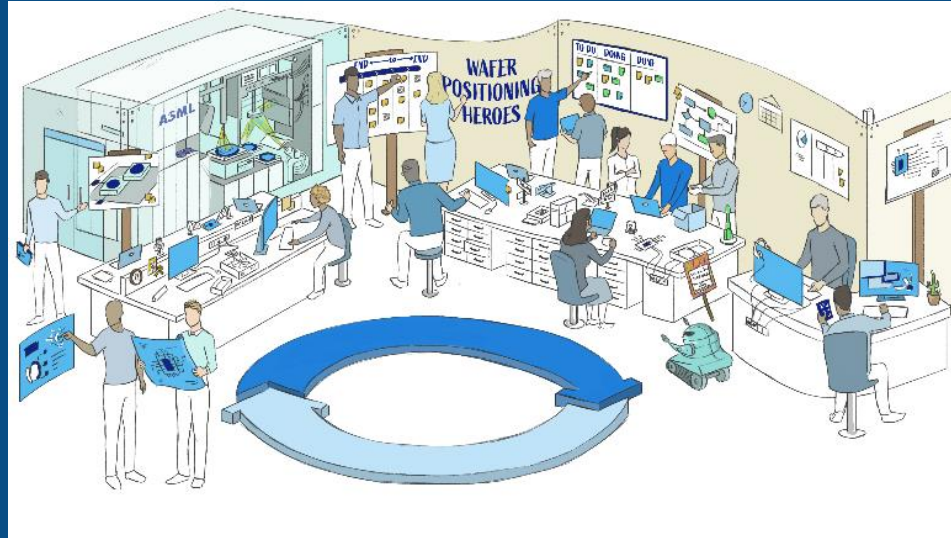
5 principles of
SAFE@ASML

The vision... our postcard from the future

Proudly name the product I helped build, and know my **contribution**

Work together with my team typically for **one year or more**

Sit together on one floor with the people I work with most



Know exactly whom to contact when I need help from elsewhere in ASML

Frequently test the current status of my team's product, with an understanding of the **full customer and business context**

Propose, fully understand and commit to the **target** I am working towards

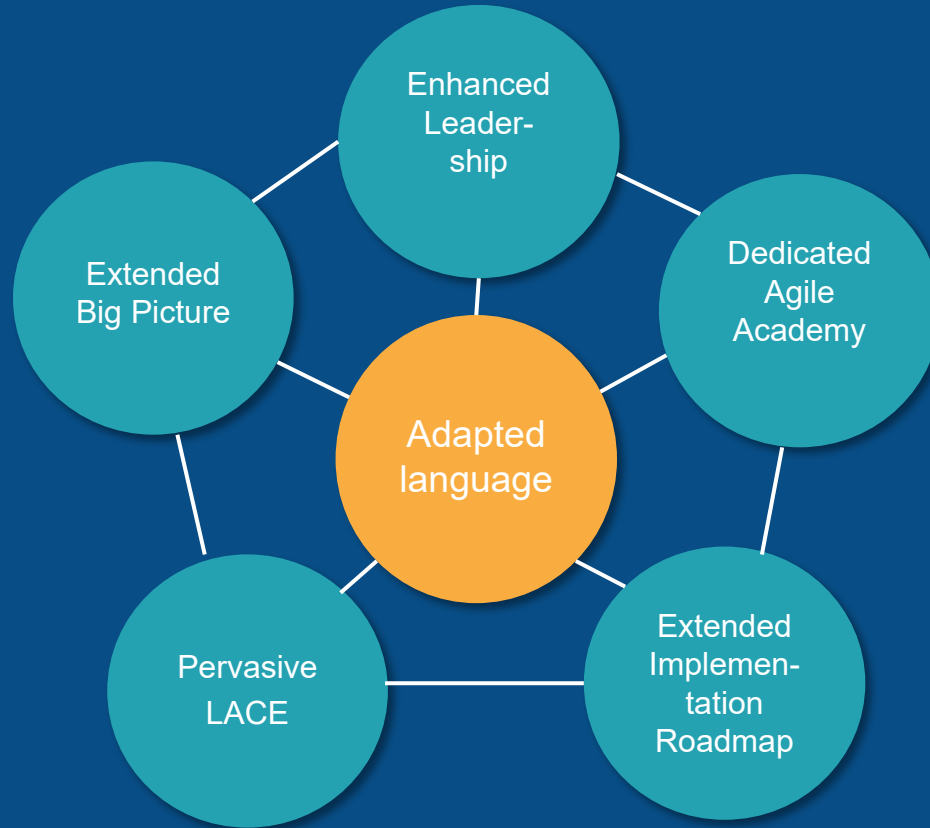
Painting the picture...

- Population of over ten-thousand highly educated, highly specialized hardware-, firmware-, software-, electronics-, optics-, physics- and mechatronics engineers, recruited from all around the world
- Extreme architectural orientation/intensity
- Achieving the impossible is considered average
- Market dominance is a given
- Failure is not an option

- Nothing really compares.....

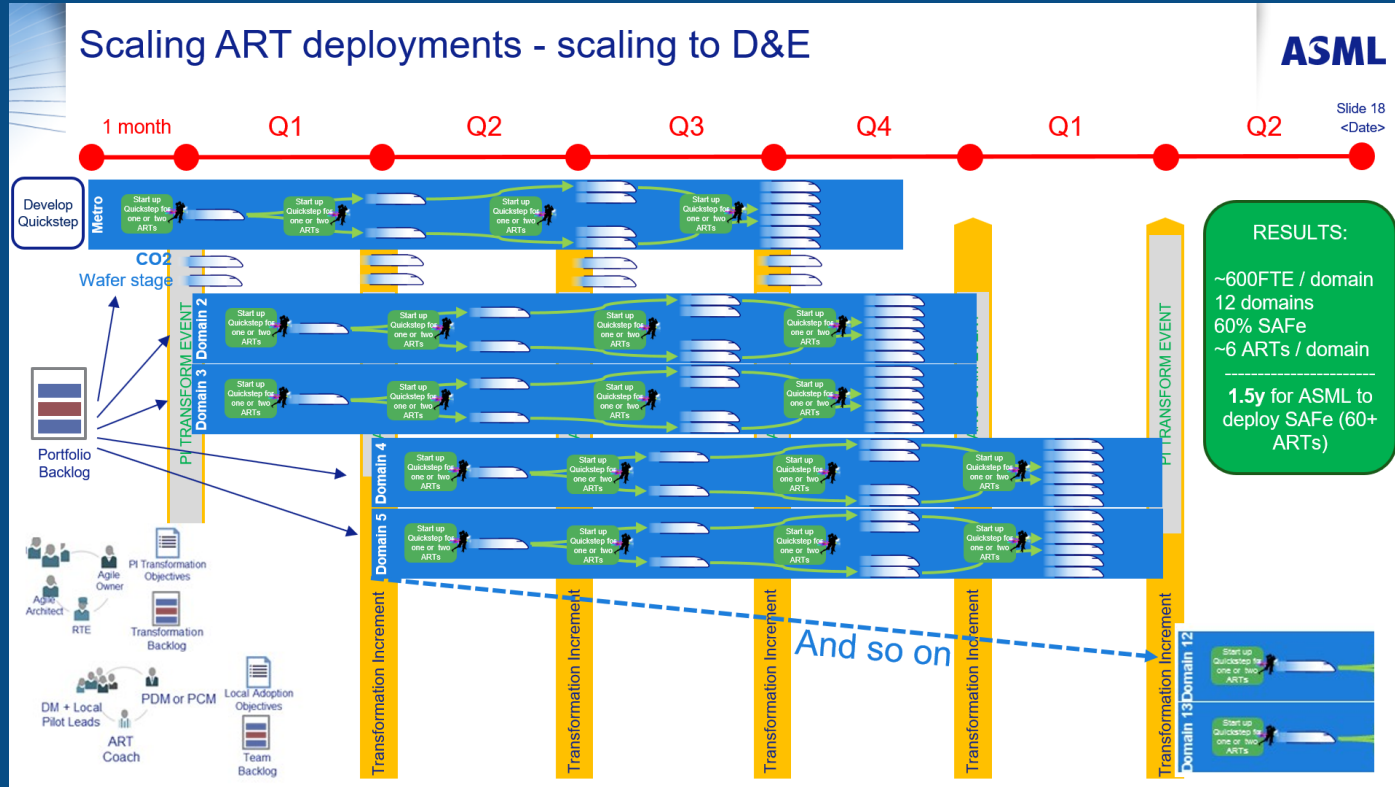
... with some contextual specifics

Adapting the approach...



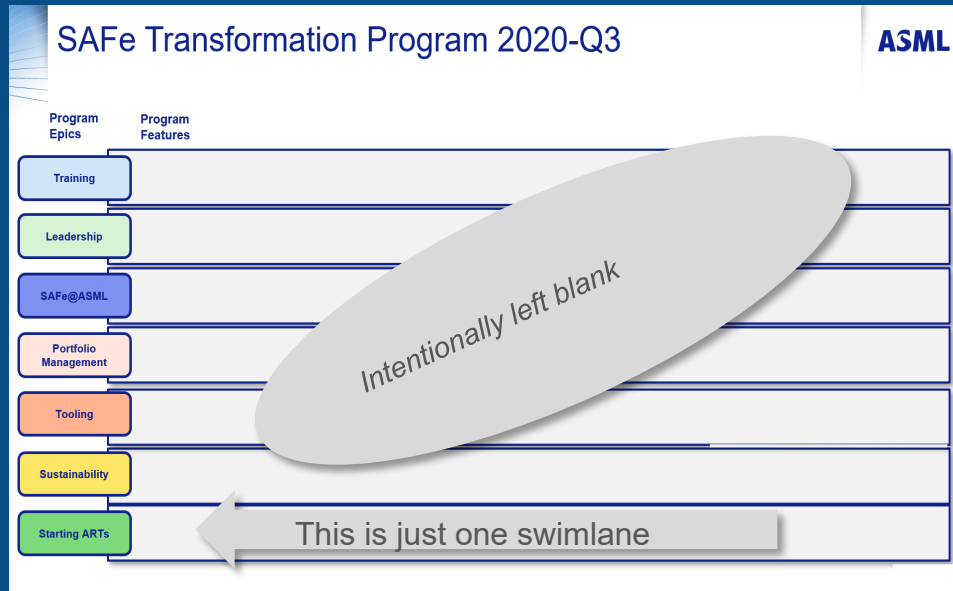
... to create a better fit

Extended implementation roadmap...



...launching ~ 70 ART's

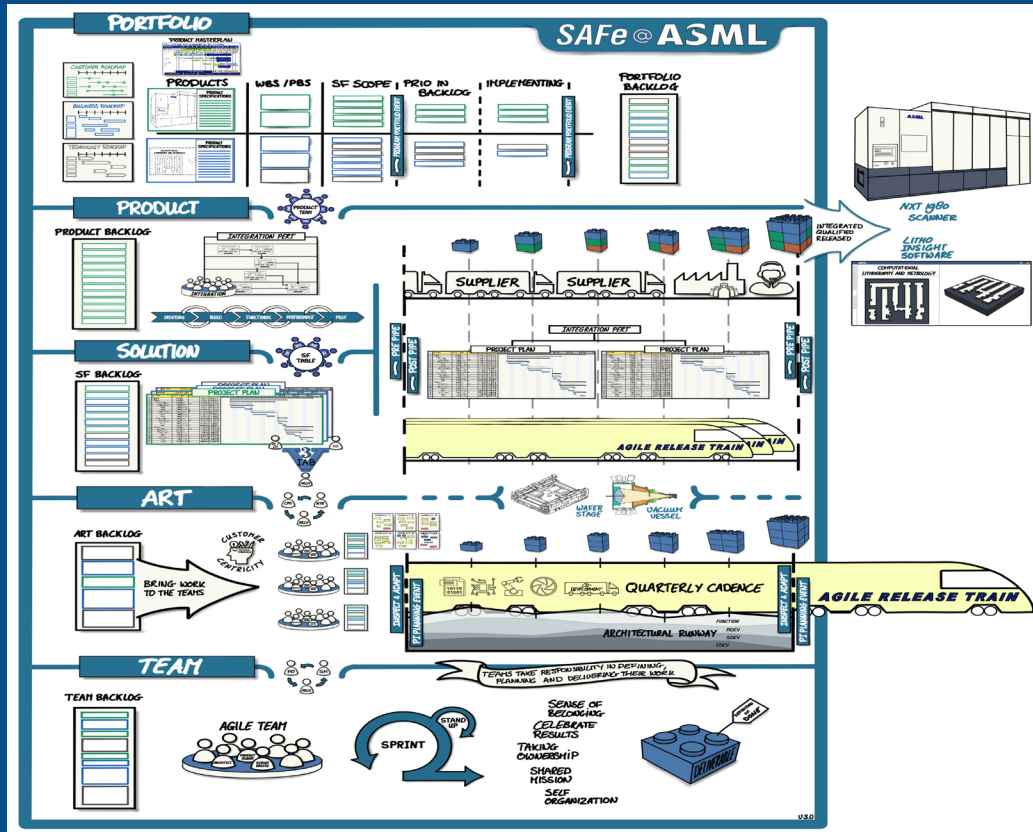
Extended implementation roadmap...



Transformational
“guiding” coalition
Organized as an ART!

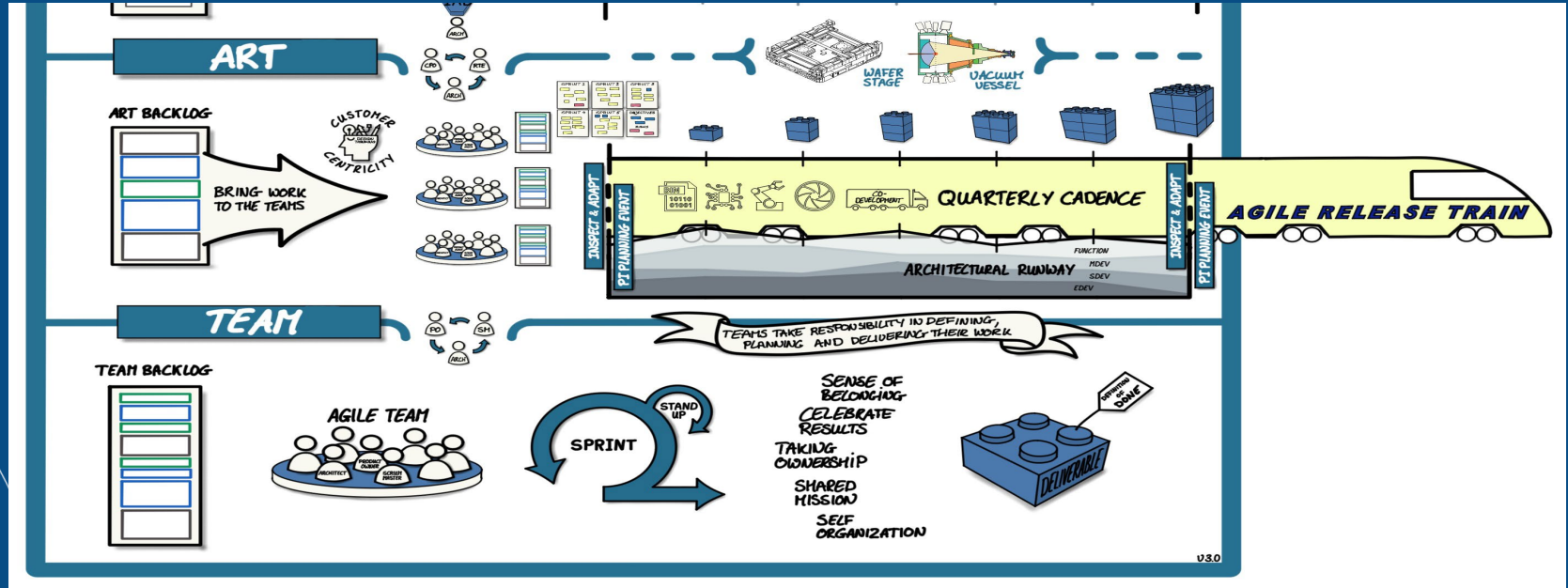
...covering a broad array of
transformational aspects

Extended Big Picture...



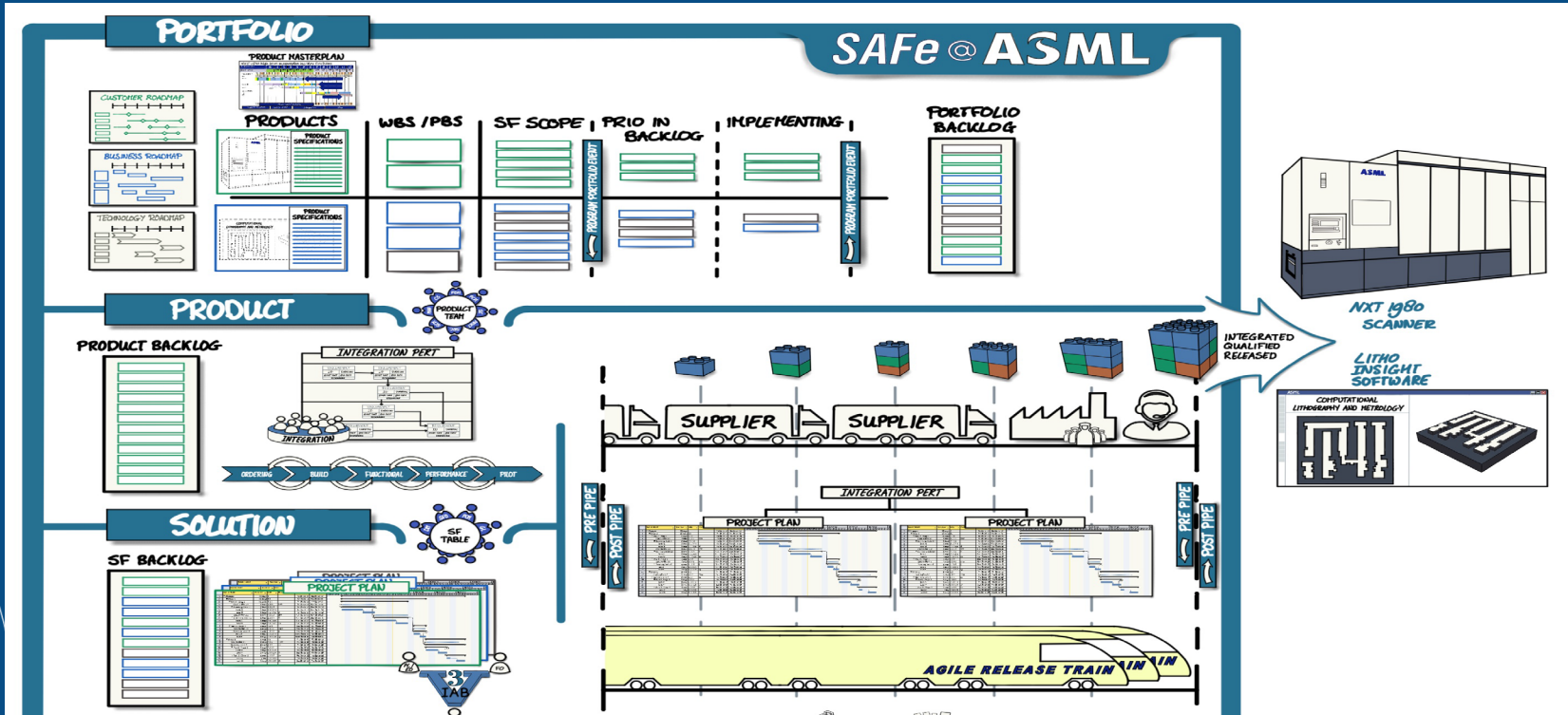
... one more level

Extended Big Picture...



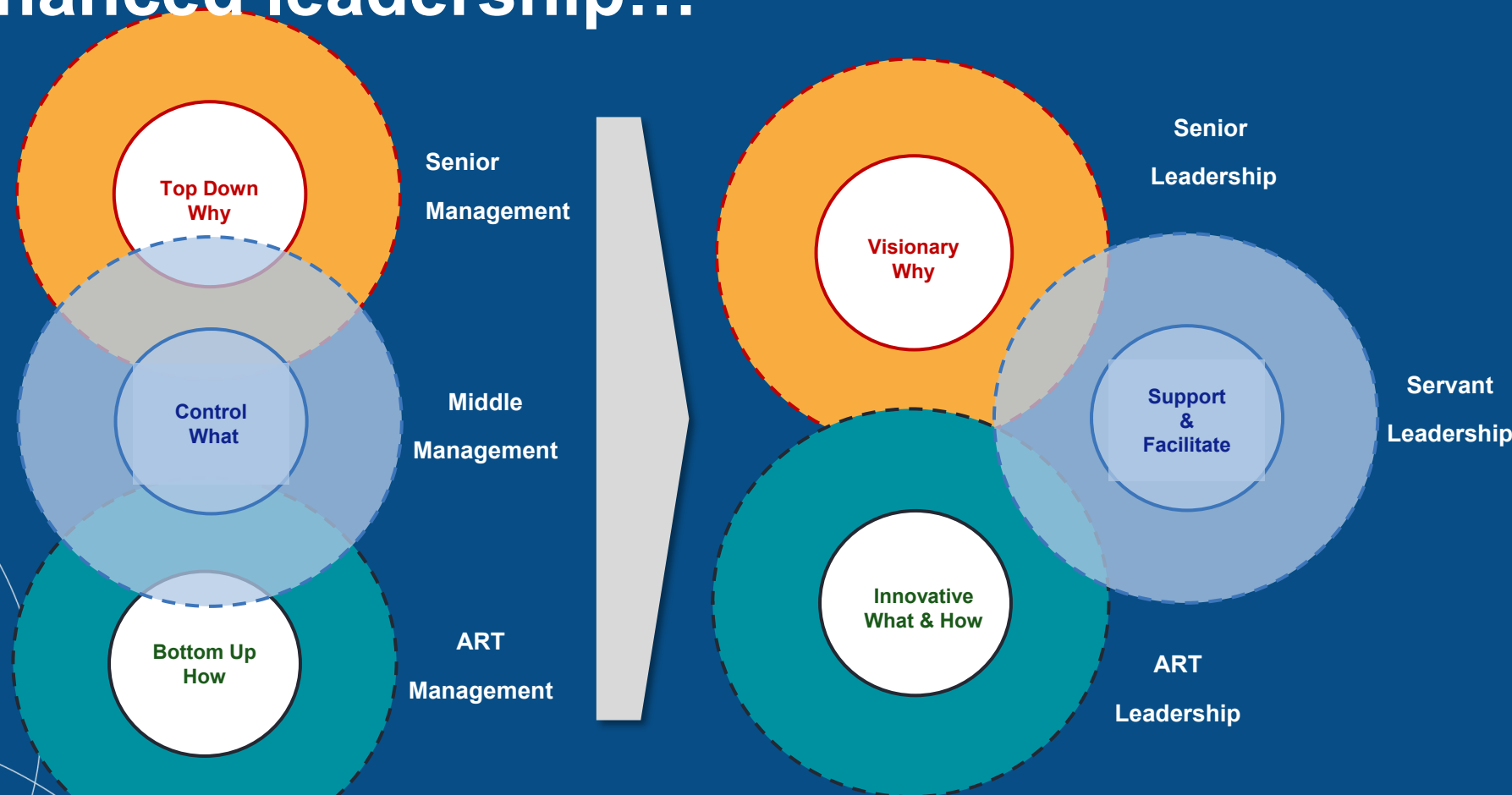
... this we all recognize

Extended Big Picture...



... this is where we extended

Enhanced leadership...



... nudging the donuts ¹⁷

Dedicated Agile Academy

Home

Agile Academy

Agile CoP

- Agenda / Backlog
- Agile CoP Presentations
- Scrum Safari

Important Documents

Recent

Site contents

[EDIT LINKS](#)






ASML

AGILE ACADEMY

Welcome to the homepage of the ASML Agile Academy.
Want to know which training is given when, look no further than the file below!

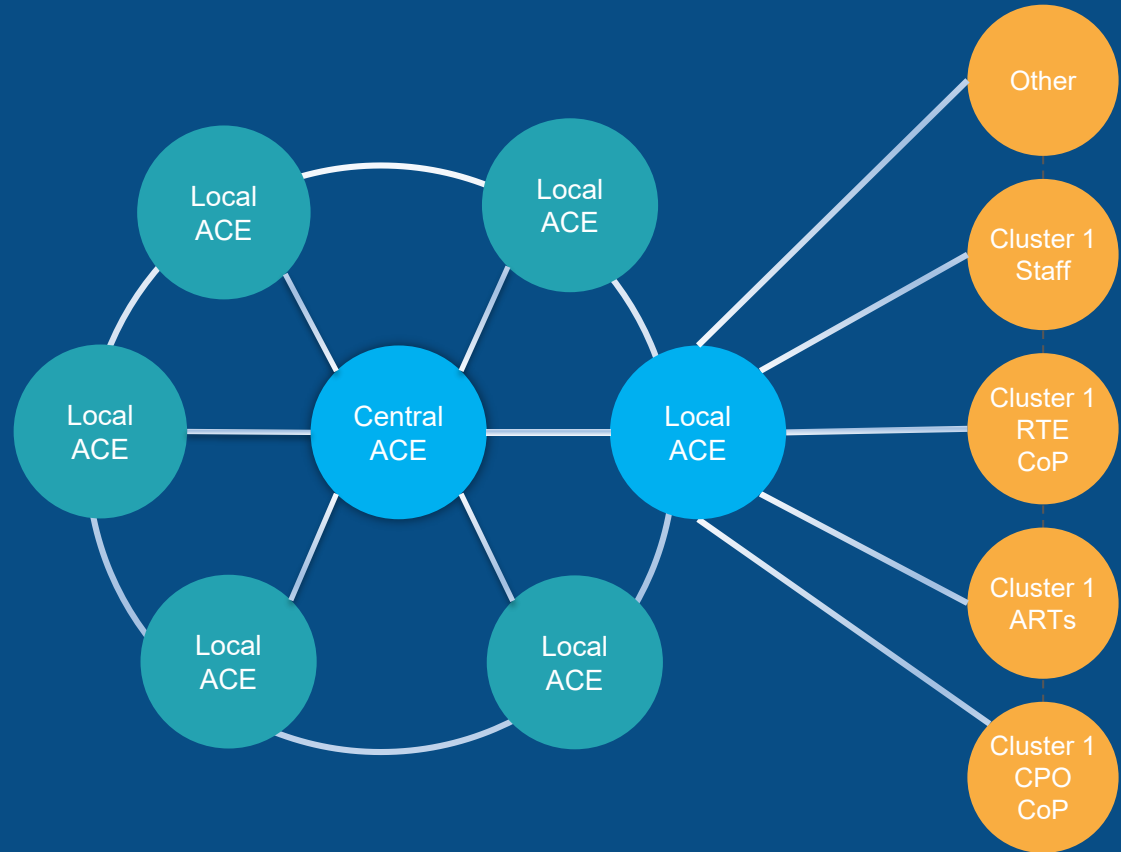
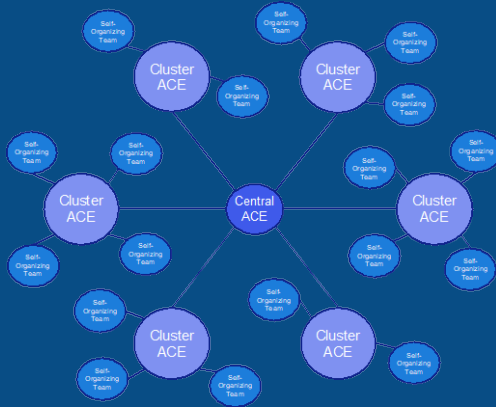
[2018-agile-training-calendar.xlsx](#)

Click here to search for your training in Mylearning:

-  Agile Fundamentals
-  SAFe for Teams (on demand)
-  Scrum Master Training
-  Product Owner Training
-  Leading SAFe
-  Agile for Executives (on demand)

... powered by SAI partners

Pervasive LACE...



Adapted language...

The Ultimate Transformational Formula
For Achieving Business Agility, using SAFe 5.0

Hans van Herwaarden, Virtual European
SAFe Summit June 2020

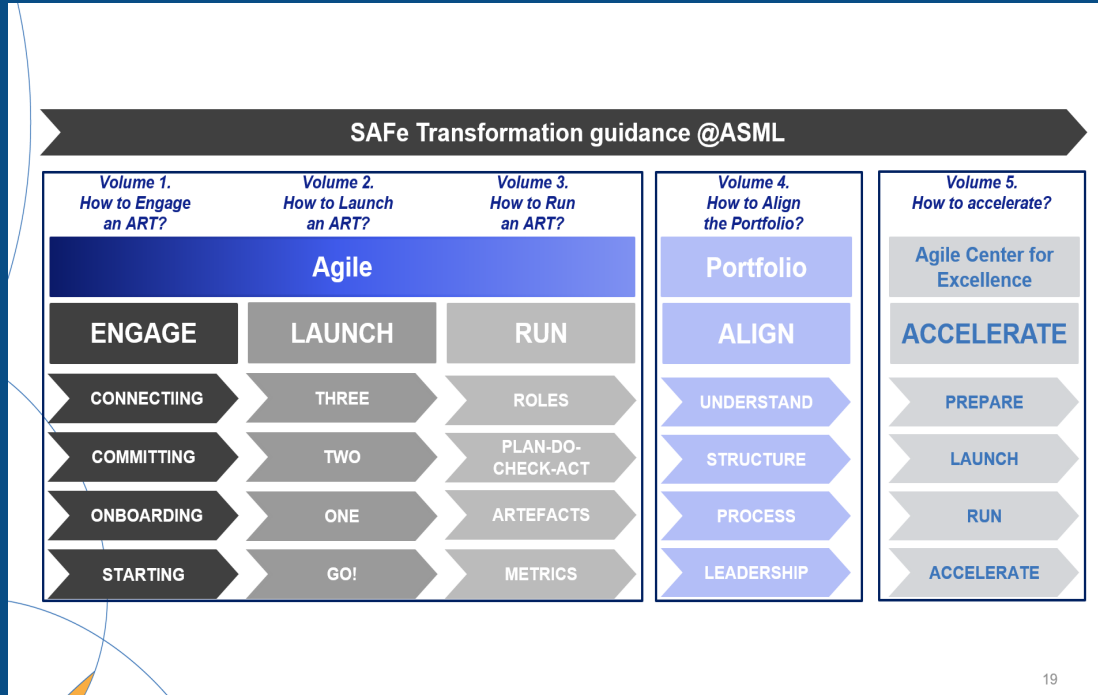
SAFe SUMMIT
10-11 JUNE, 2020

$$\text{Org}_{XL}^{\text{WF/AA}} + \text{SAFe}_{\text{Full}}^{5.0} = \text{Org}_{XL}^{\text{BA}} =$$
$$\left[\begin{array}{c} \text{DP1} \\ \text{DP2} \\ \dots \\ \text{DPx} \end{array} \right] * \left[\text{BL1 BL2} \dots \text{BLx} \right] + \left[\begin{array}{c} \text{ST1, ST2} \dots \text{STx} \\ \text{Lean, Agile \& Devops} \end{array} \right]^3 = \left[\begin{array}{c} \text{LAL} \\ \text{CLC} \\ \text{TTA} \\ \text{APD} \\ \text{ESD} \\ \text{LPM} \\ \text{OA} \end{array} \right] * \left[\text{VS1, VS2} \dots \text{VSx} \right]$$
$$= \text{Org}_{XL}^{\text{BA}}$$

- Think, feel, speak and hear like an engineer
- Avoid software-only related terminology, principles and or frameworks
- Make instructions, manuals, templates, frames, prototypes, cookbooks and reference architectures for everything
- Understand & integrate Conway's law as part of the implementation strategy

... understand & integrate Conway's law

Adapted language...



... the cookbook approach

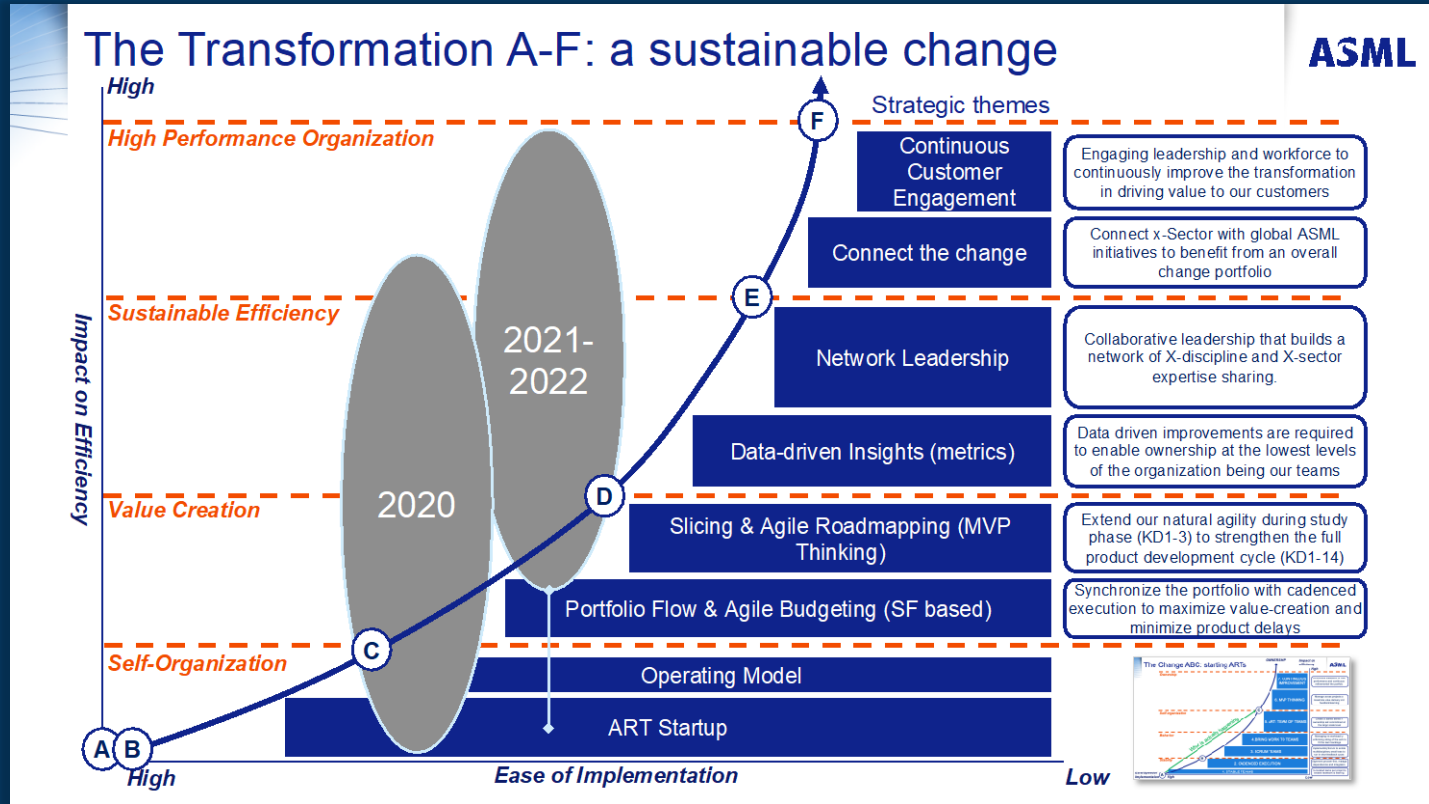
2,5 years into the Journey...



- Strong (leadership) support for transformation
- Stable team of teams providing transformational support at various levels (including ACE's) working in a "SAFe way" themselves
- ART startup phase to be completed in 2021
- Majority of all engineers now working the "SAFe way"
- Reaching the first "plateau" of competence at team and ART level

... and still a long way to go!

So what is next...

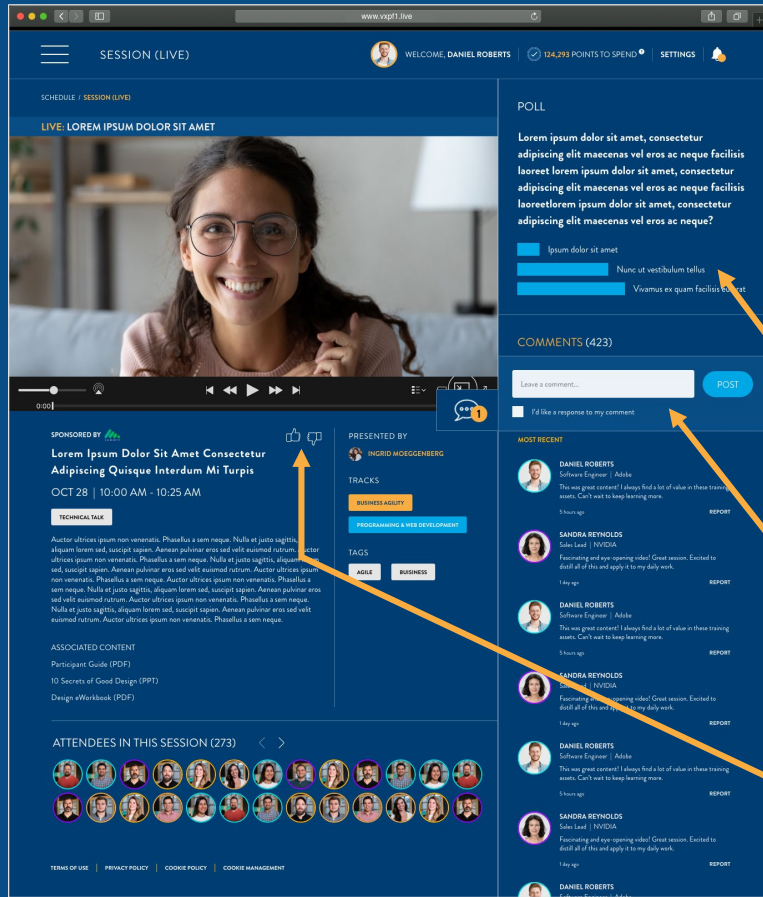


... on the roadmap to high performance?

Join me at the Meet the Speaker Session!



Please refer to the agenda for scheduled times



Participate in polling, post comments, and rate sessions

1

Polling

2

Comment

3

Thumbs up or down

Thank you!