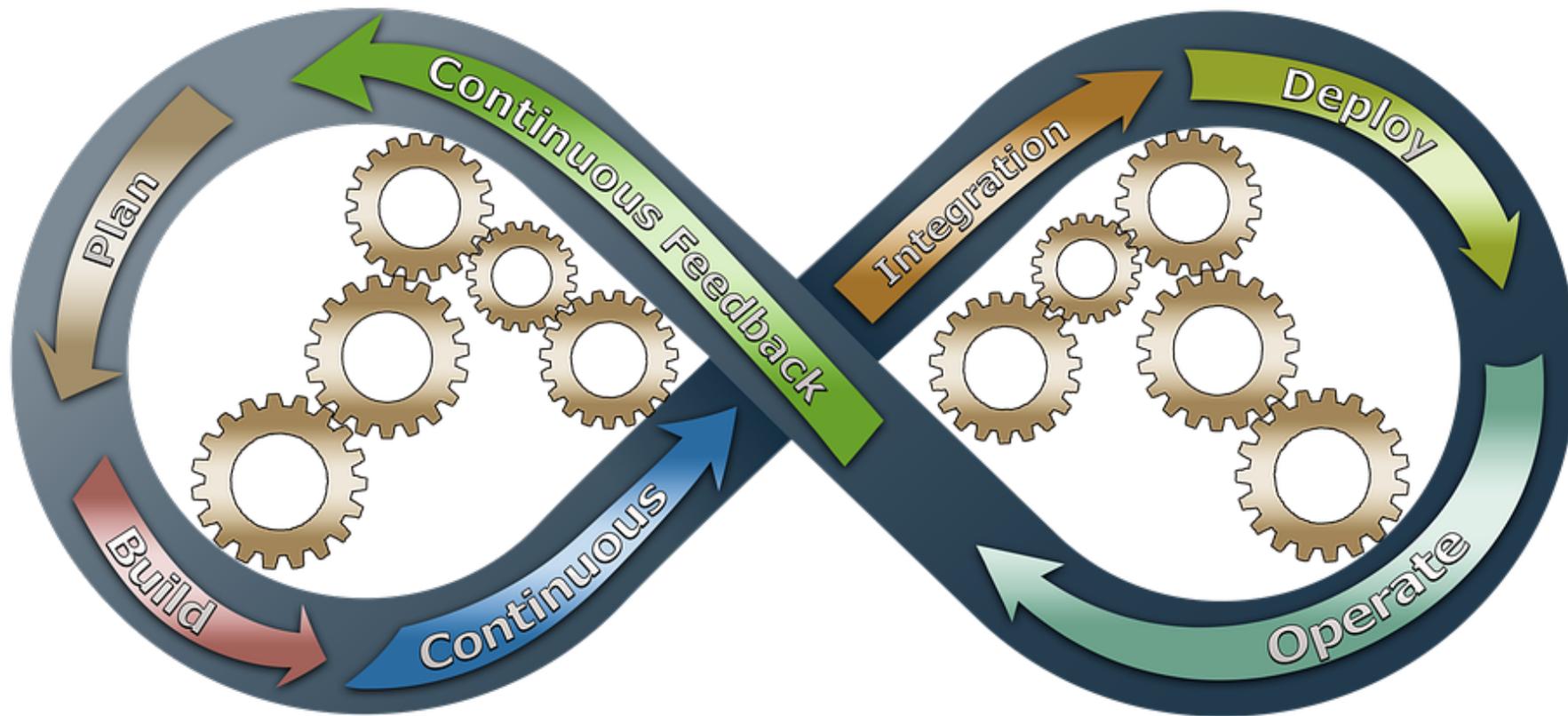




Welcome!

Agile Functional Safety

Agile Functional Safety

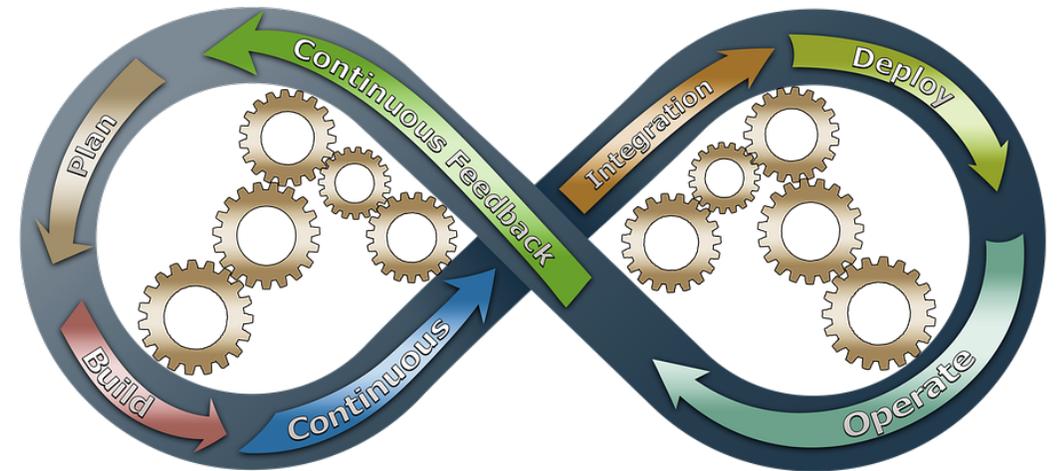


Agile Functional Safety

What Does it Mean?

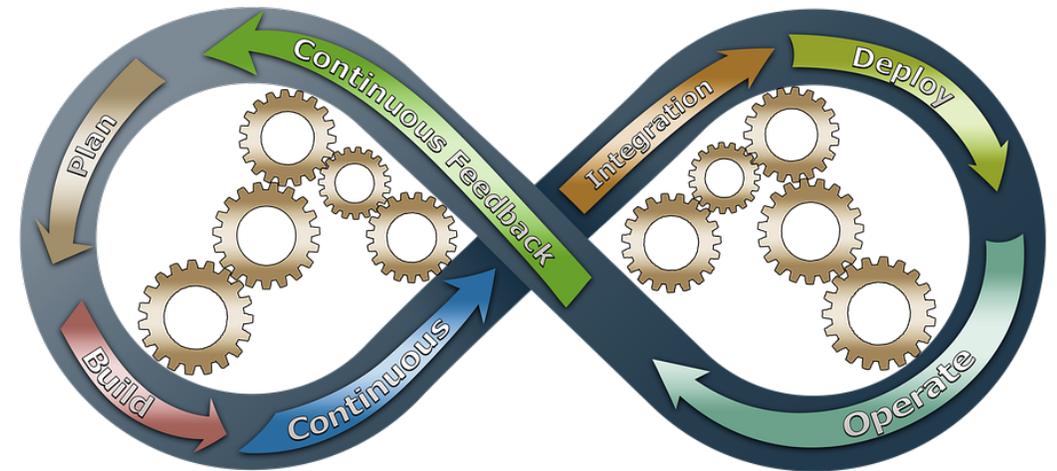
Cambridge's definition:

1. Able to move about quickly and easily
2. Able to deal with new situations or changes quickly and successfully



Agile Functional Safety

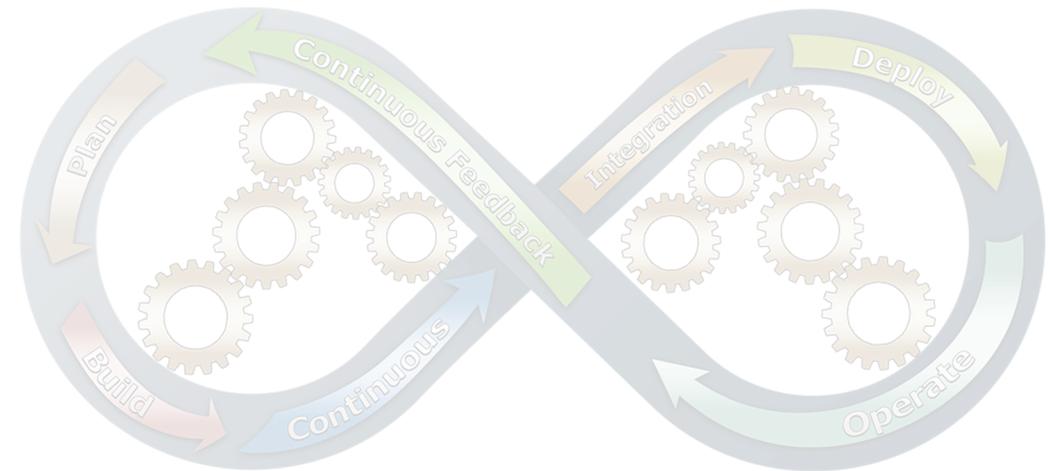
Core Values of the Agile approach

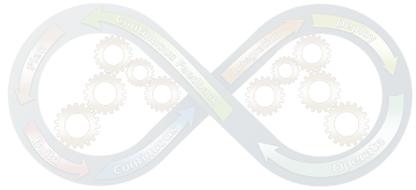


Agile Functional Safety

Core Values of the Agile approach

- CV1:** Individuals and interactions over processes and tools
- CV2:** Working software over comprehensive documentation
- CV3:** Customer collaboration over contract negotiation
- CV4:** Responding to change over following a plan





Agile Functional Safety

Step 1. Item definition

Step 2. Hazard analysis

Step 3. Functional Safety Concept

Step 4. Technical Safety Concept

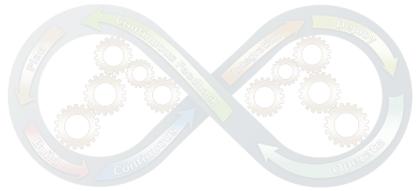
Step 5 & 6. Hardware Safety Software Safety

Step 9. Assessment

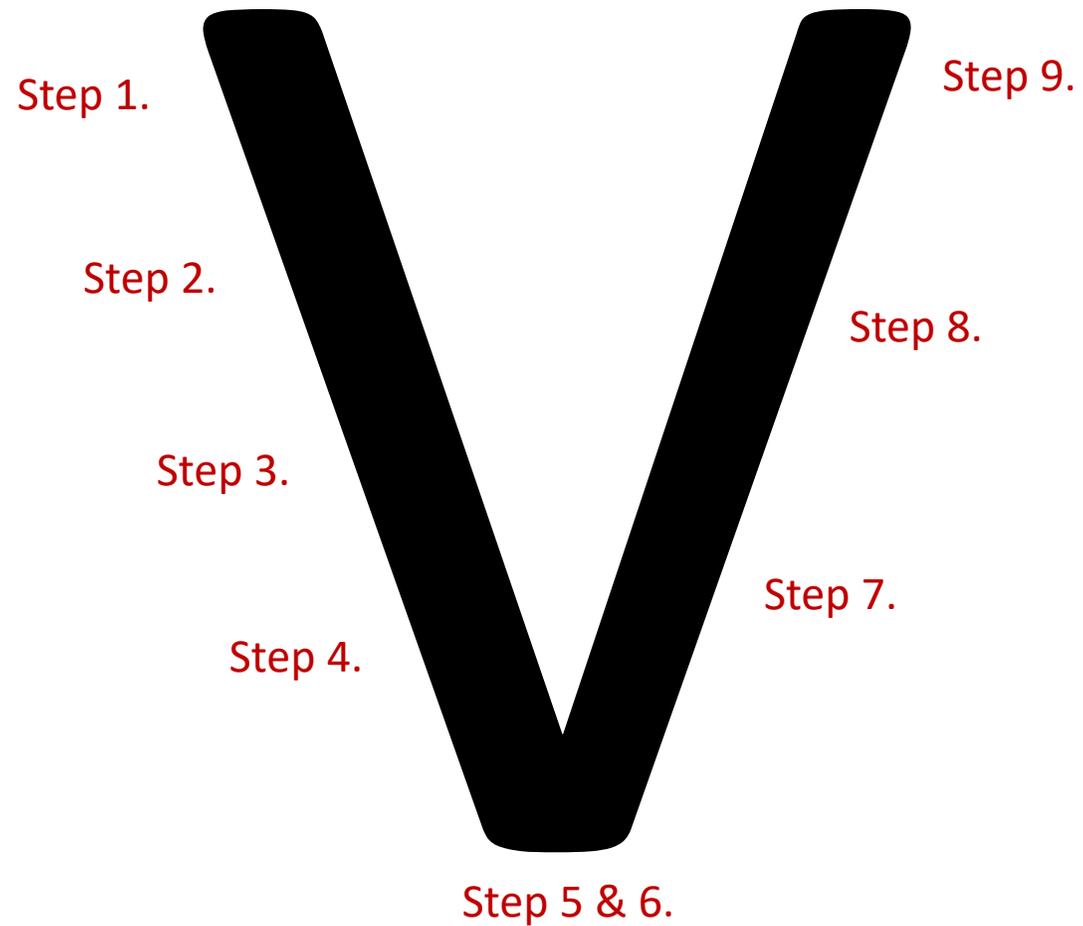
Step 8. Safety Validation

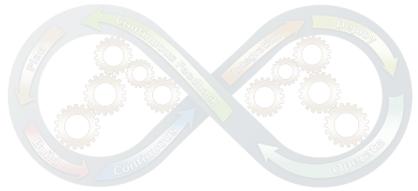
Step 7. Testing & integration





Agile Functional Safety





Agile Functional Safety

Simplified meaning of the V-model

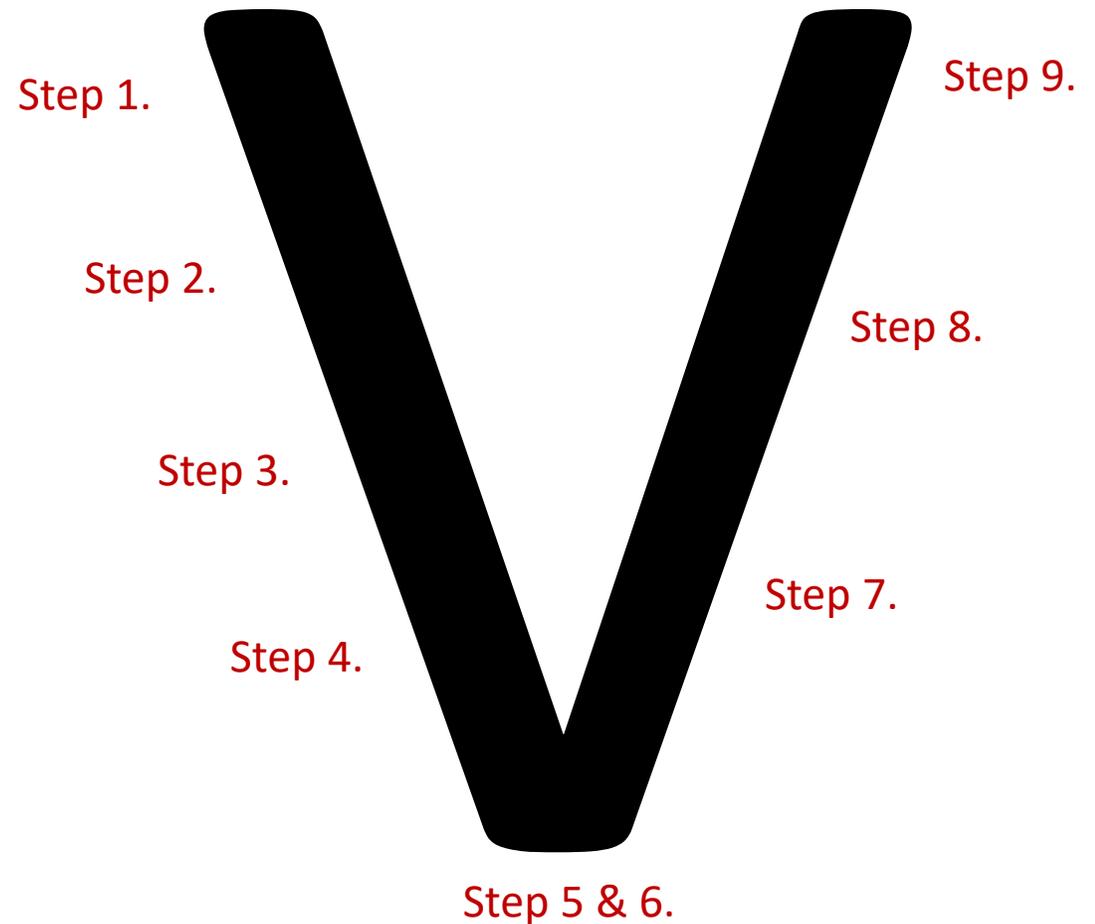
1: Perform one step before you move on to the next

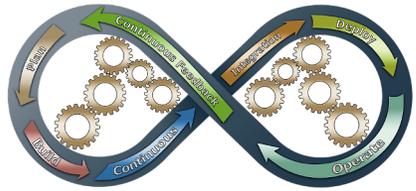
2: Development to the left, V&V to the right

FuSa specific

3: Documentation required every step of the way

4: Plan required



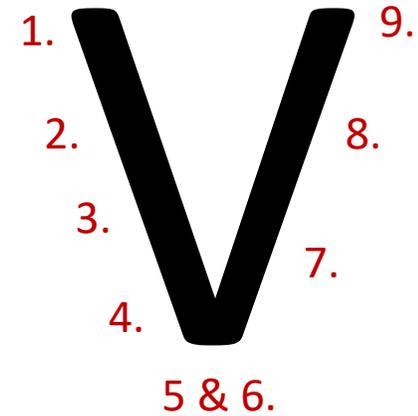


Core Values

Agile

v.s.

Functional Safety



FuSa V-model

CV1: Individuals and interactions over processes and tools

CV2: Working software over comprehensive documentation

CV3: Customer collaboration over contract negotiation

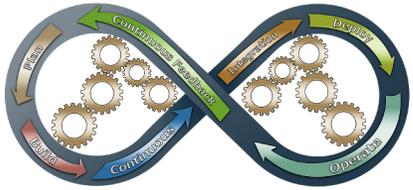
CV4: Responding to change over following a plan

1: Perform one step before you move on to the next

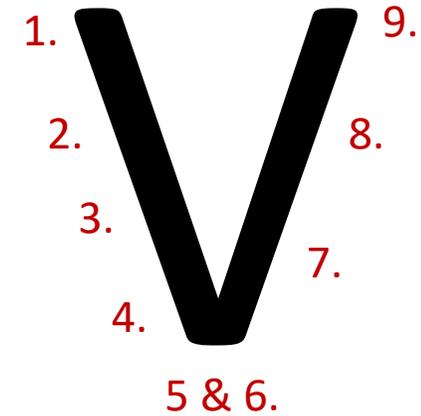
2: Development to the left, V&V to the right

3: Documentation required every step of the way

4: Plan required



So how do we get these two methodologies to work together?



- Is it even possible?
- Why would we even do such a thing?

Now, That's what we are here to convey today!



Agile and Functional Safety



Sofie
Weidenlöv

*Scrum Master
Kanban Coach
Agile Product Owner
Functional Safety Manager*

Functional Safety Manager



Johan
Bergström

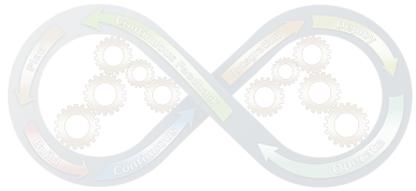
Agenda

1. The Study
2. Challenges & Myths
3. Benefits & Potentials
4. Why we struggle
5. Tailoring Agile Functional Safety

The study of Agile Functional Safety

- 11 participants – semi-structured interviews
- Diverse set
 - Men & Women
 - Different nationalities
 - Active in different countries across the world
- All had experience from working functional safety in an agile environment
- Highly anonymous





What is the **problem?**



At least 35% (!) of the statements were referring to various problems



It is evident that we have some obstacles to overcome for proper alignment

CV1: Individuals and interactions over processes and tools

CV2: Working software over comprehensive documentation

CV3: Customer collaboration over contract negotiation

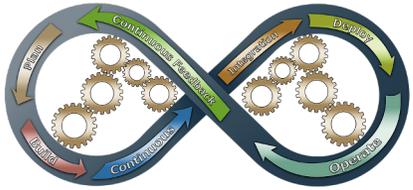
CV4: Responding to change over following a plan

1: Perform one step before you move on to the next

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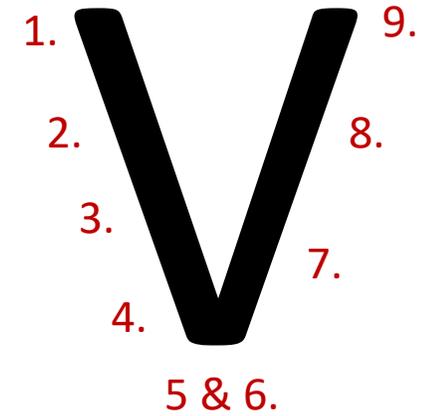
3: Documentation provided over step of the way

4: Plan required



Core Values

What is the **problem?**



FuSa V-model

CV1: Individuals and interactions over processes and tools

CV2: Working software over comprehensive documentation

CV3: Customer collaboration over contract negotiation

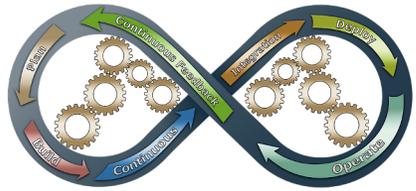
CV4: Responding to change over following a plan

1: Perform one step before you move on to the next

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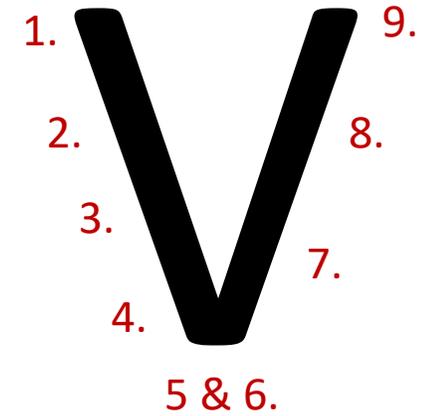
3: Documentation required every step of the way

4: Plan required



Core Values

Are they Contradicting each other? What do YOU think?



FuSa V-model

CV1: Individuals and interactions over processes and tools

CV2: Working software over comprehensive documentation

CV3: Customer collaboration over contract negotiation

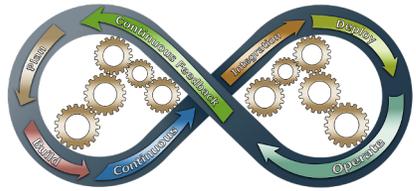
CV4: Responding to change over following a plan

1: Perform one step before you move on to the next

2: Development to the left, V&V to the right

3: Documentation required every step of the way

4: Plan required



Are they Contradicting each other?

Study results:

Core Values

CV1: Individuals and interactions **over** processes and tools

CV2: Working software **over** comprehensive documentation

CV3: Customer collaboration **over** contract negotiation

CV4: Responding to change **over** following a plan

“One thing does not exclude the other”

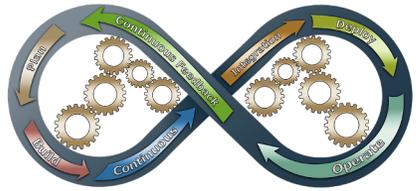
“Weighting/prioritization is subjective”

“Trainers often have very limited understanding of Functional Safety or the automotive industry in general”

“The meaning of the word ‘over’ is often misunderstood – even by trainers”

“It may work for SW but not For ISO26262”





Are they Contradicting each other?

Core Values

No, they are not...

CV1: Individuals and interactions over processes and tools

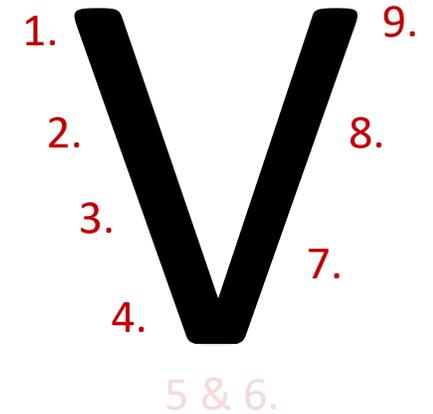
CV2: Working software over comprehensive documentation

CV3: Customer collaboration over contract negotiation

CV4: Responding to change over following a plan

... yet, it is evident that most, if not all of us, have experienced **problems when going Agile.**

FuSa V-model



1: Perform one step before you move on to the next

2: Development to the left, V to the right

3: Documentation required every step of the way

4: Plan required

- But why ?

“We do not need to move mountains to make changes”

**Iterations
&
rapid improvements**

Speeding up the process

Continuous:

- Releases
- Integrations
- Planning
- Safety Cases
- ...

What do we have to gain from Agile Functional Safety?

Cross functional teams

*“Feasible for Safety Analyses -
more aspects can be collected
-- > larger coverage”*

Task orientation

*“The Agile methods assist and
promote the progress of breaking
the job down into comprehensive
work packages and specific tasks”*

Quality of the work

*Transparency; keeping track of
who did what and the working
progress*

*“A great teamwork
increases the quality of the
Work Products”*

*“Better understanding for your
co-workers”*

“We do not need to move mountains to make changes”

**Iterations
&
rapid improvements**

Speeding up the process

Continuous:

- Releases
- Integrations
- Planning
- Safety Cases
- ...

Cross functional teams

TEAMWORK

Task orientation

“The Agile methods assist and promote the progress of breaking the job down into comprehensive work packages and specific tasks”

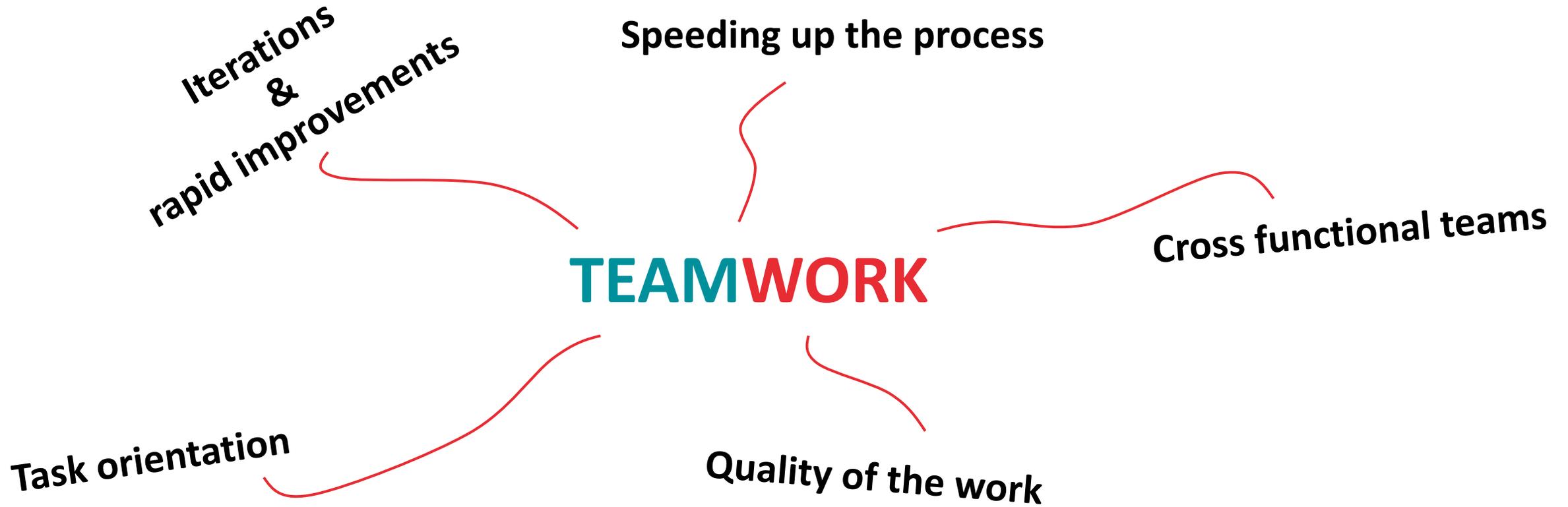
Quality of the work

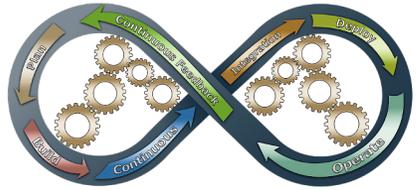
Transparency; keeping track of who did what and the working progress

“A great teamwork increases the quality of the Work Products”

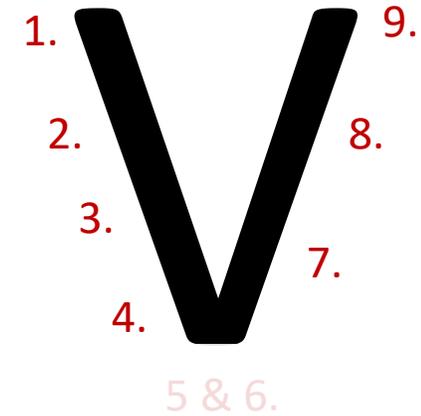
“Feasible for Safety Analyses - more aspects can be collected -- > larger coverage”

“Better understanding for your co-workers”





Aligning Agile Functional Safety



Core Values

Evidently, we have a lot to gain from
proper alignment ...

CV1: Individuals and interactions over processes and tools

CV2: Working software over comprehensive documentation

CV3: Customer collaboration over contract negotiation

CV4: Responding to change over following a plan

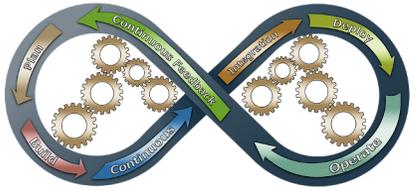
FuSa V-model

1: Perform one step before you move on to the next

2: Development to the left, V&V to the right

3: documentation required every step of the way

- Let's talk about **why...**



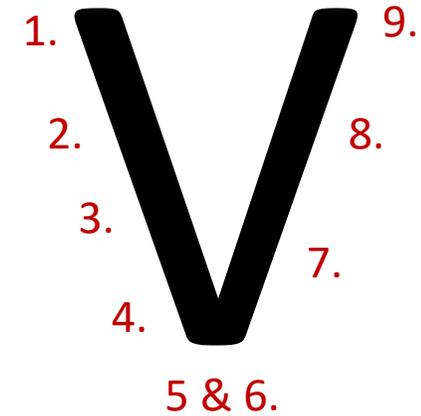
Please raise **your hand**...

1. How many in here have been working Agile?

Most hands in the air

4. Now – how many of you were familiar with the 4 Core Values of the Agile approach?

Not as many hands in the air as we would need for a proper FuSa/Agile alignment - and this is the takeaway – this is the reason; we have all experienced problems when going agile with FuSa → we need to get more Agile training and we need to be trained by someone with FuSa or at least automotive experience

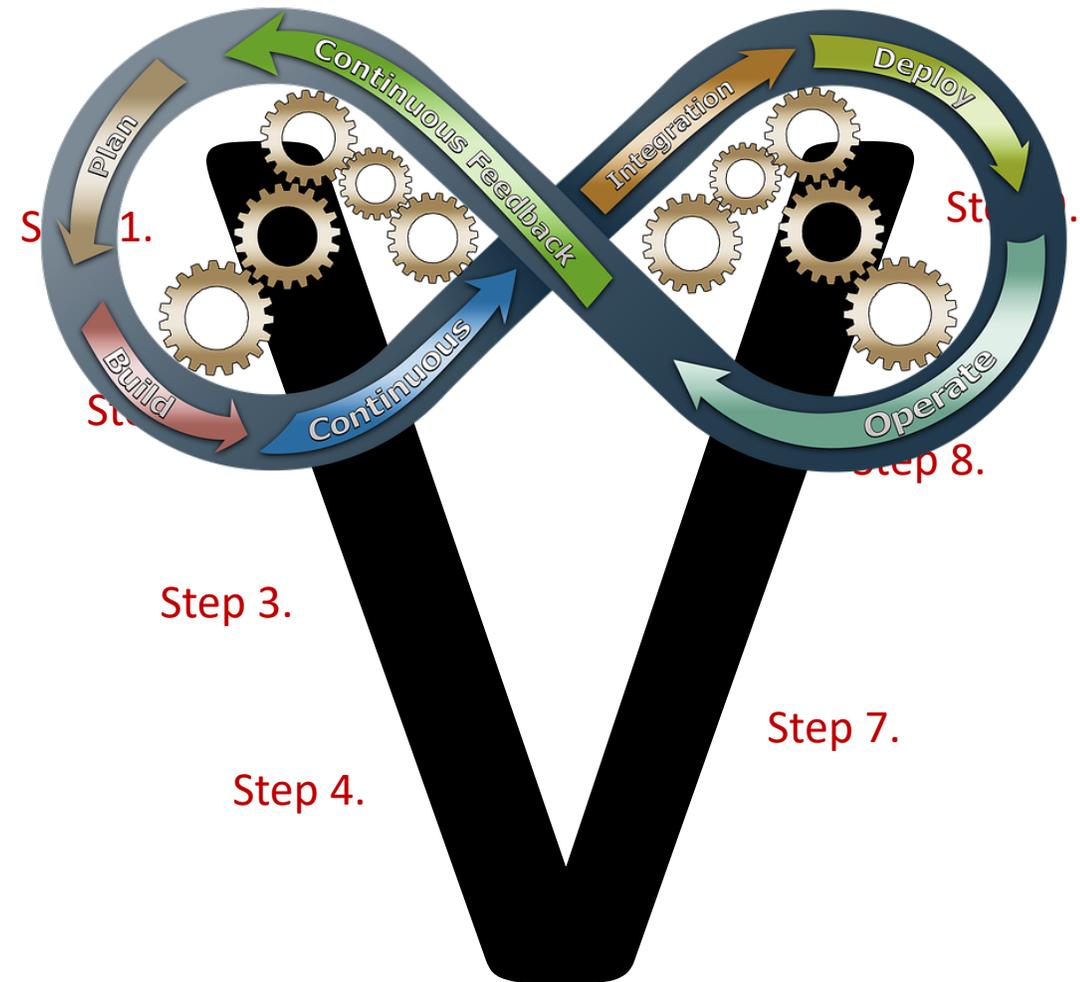


2. Automotive development in an Agile set-up?

3. Functional Safety in an Agile set-up?

Agile Functional Safety

So... How do we tailor this?



There is...

...No "one size fits all"

...Nor a standard recipe that is always going to work

Tailoring Agile Functional Safety

We need to adapt to the current situation

We need to adapt to what is being developed

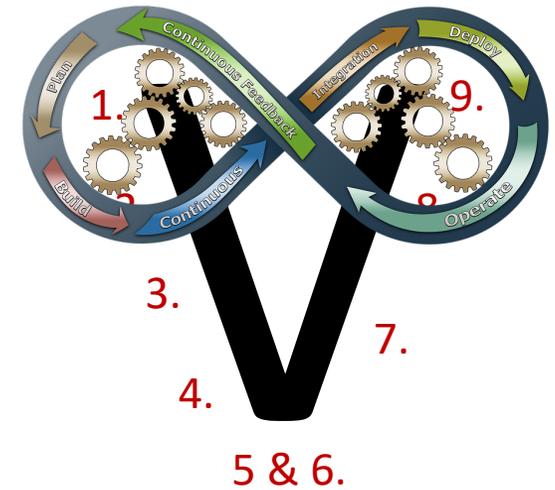
The organisation

The team

The individual

- *Size*
- *Experience*
- *Development phase*
- *Goals & purpose*

- *Automotive Industry*
- *ISO 26262*
- *Agile frameworks*



Adjust the weighting of the Core Values!

→ Accordingly

→ Continuously

Tailoring Agile Functional Safety

Example – Core Value 1

Individuals and interactions **over** processes and tools



The essence of CV 1: Applicable when we have a mature organization and an experienced team with individuals with great FuSa & agile skills

Adjust the weighting of the Core Values!



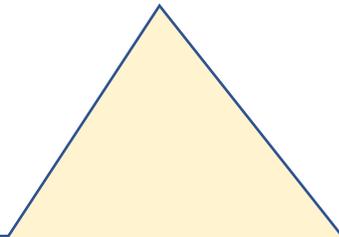
→ Accordingly

→ Continuously

Tailoring Agile Functional Safety

Example – Core Value 1

Individuals and interactions over processes and tools



Momentary tailoring of CV 1: this is a suggestion of how CV1 needs to be weighted when a team or an organization is about to go Agile OR just about to deploy ISO 26262 for the first time



Adjust the weighting of the Core Values!



→ Accordingly

→ Continuously

Tailoring Agile Functional Safety

Example – Core Value 1

*Individuals and interactions **over** processes and tools*

Momentary tailoring of CV 1: this is a suggestion of how CV1 needs to be weighted when a team or an organization is about to go Agile AND is just about to deploy ISO 26262 for the first time

- And that is ok too, although it appears to be against the original message of the Agile approach – as that is what being agile is all about – momentary changes! Once the team/org. gets up to speed and the process and usage of tools becomes more and more automated, the weighting should change again, and refocus on individuals and interactions



→ Accordingly

→ Continuously

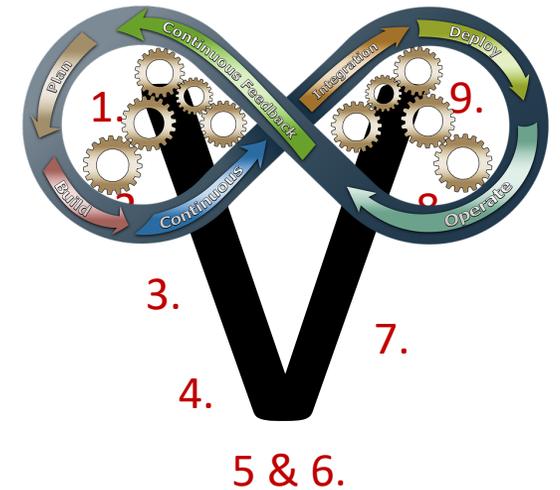
Agile Functional Safety

And how do we do this again?

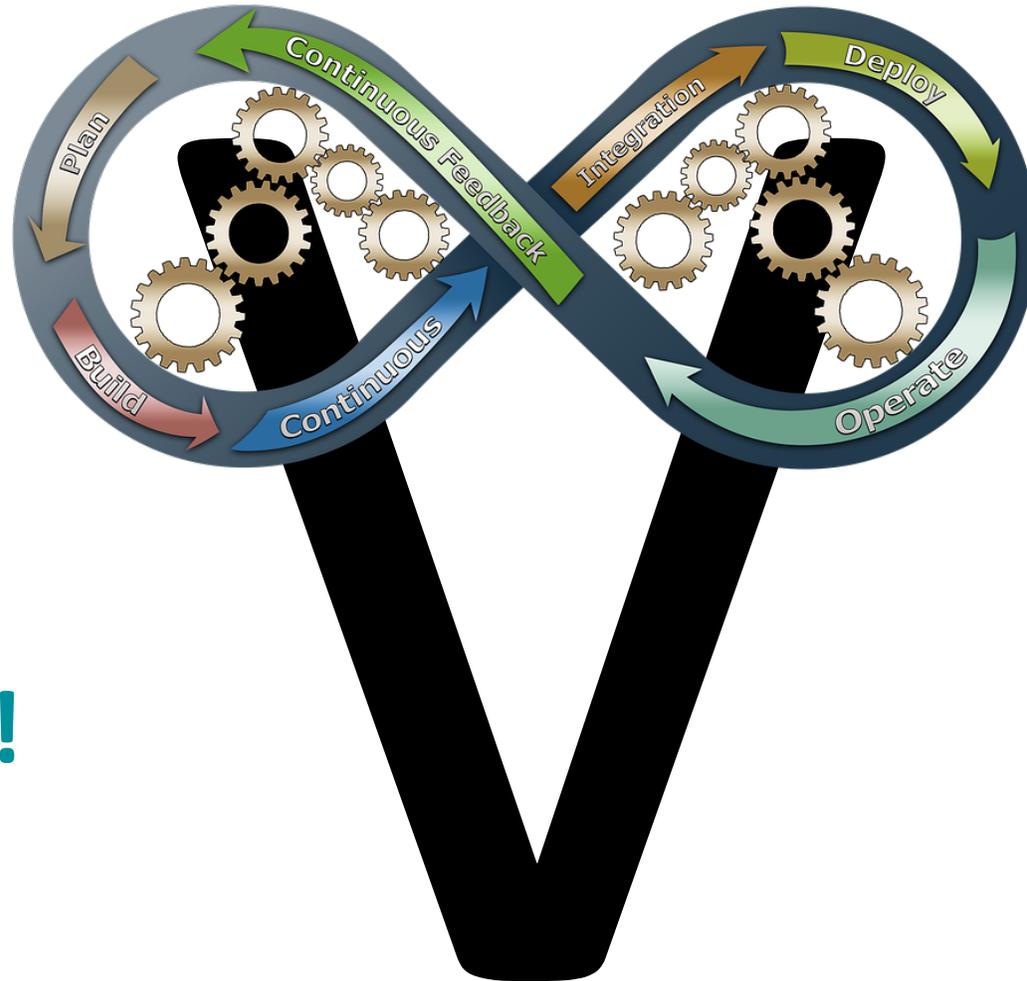
Well, it all comes down to **education!**

And it all starts with **YOU!**

So... **Let's do this!**



Agile Functional Safety



Thank you!

Questions?