



Scrum and SafeScrum



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Why Agile

Agile development has shown several positive effects, such as better

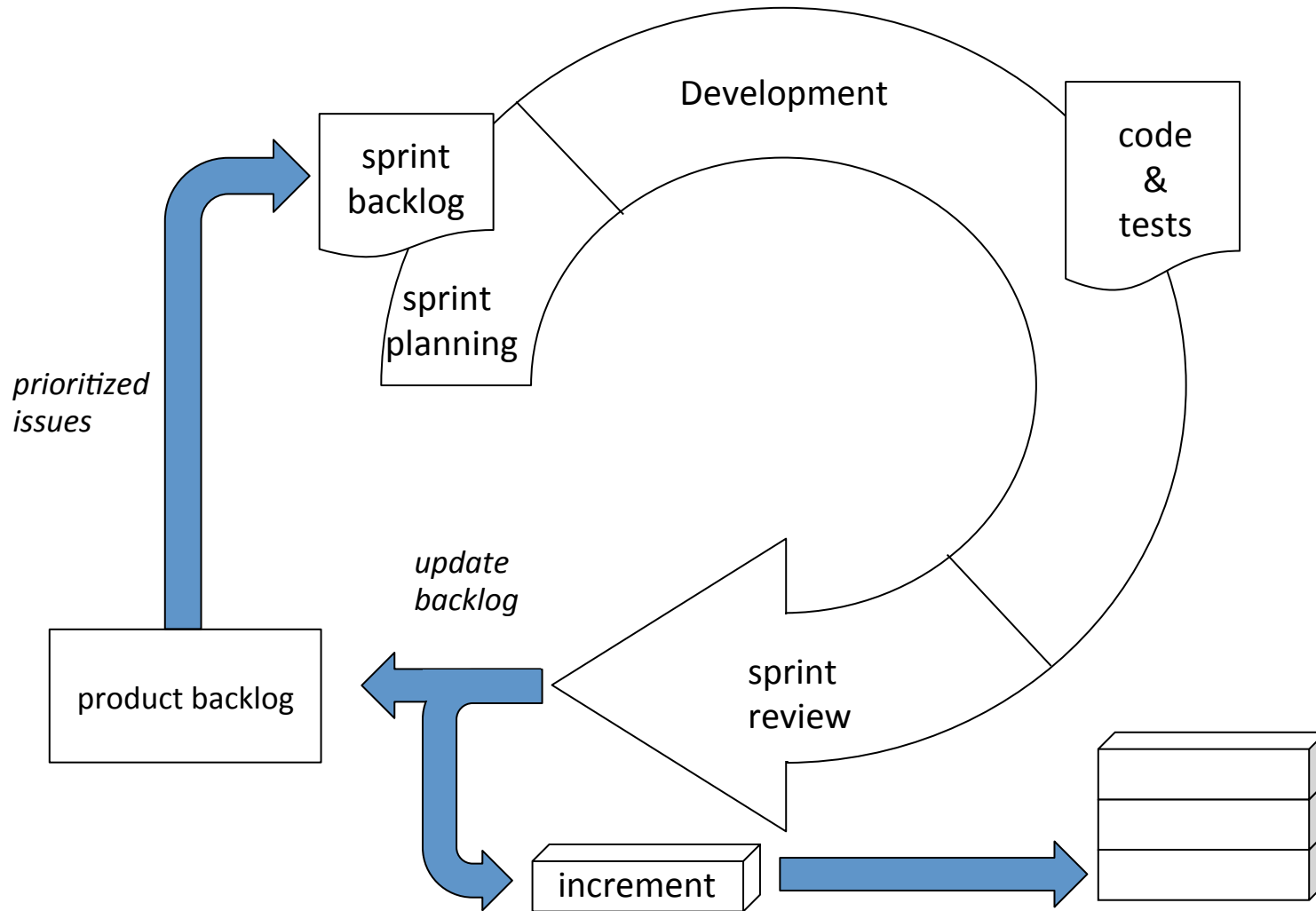
- Project visibility
- Communication
 - in the project
 - between the project and its customers
- Customer focus - adaptation to customer needs as the customers' environment changes
- Handling of errors in requirements, design and code

Why Scrum

Scrum is a development process, **not** a development method =>

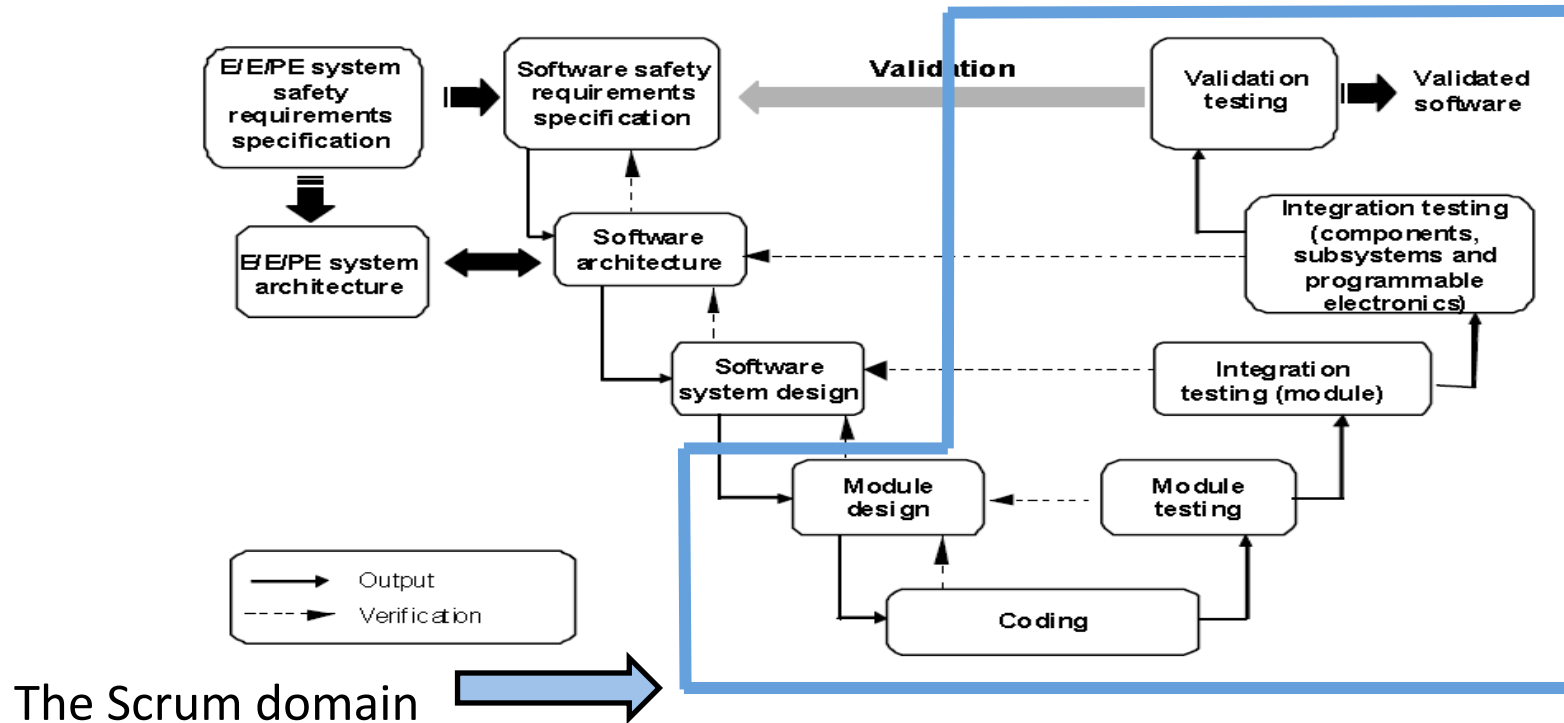
- Has a strict sequence of activities for each sprint
- Retain flexibility when it comes to how to code, test and integrate
- Keep communication, customer focus and requirements' flexibility

What is Scrum

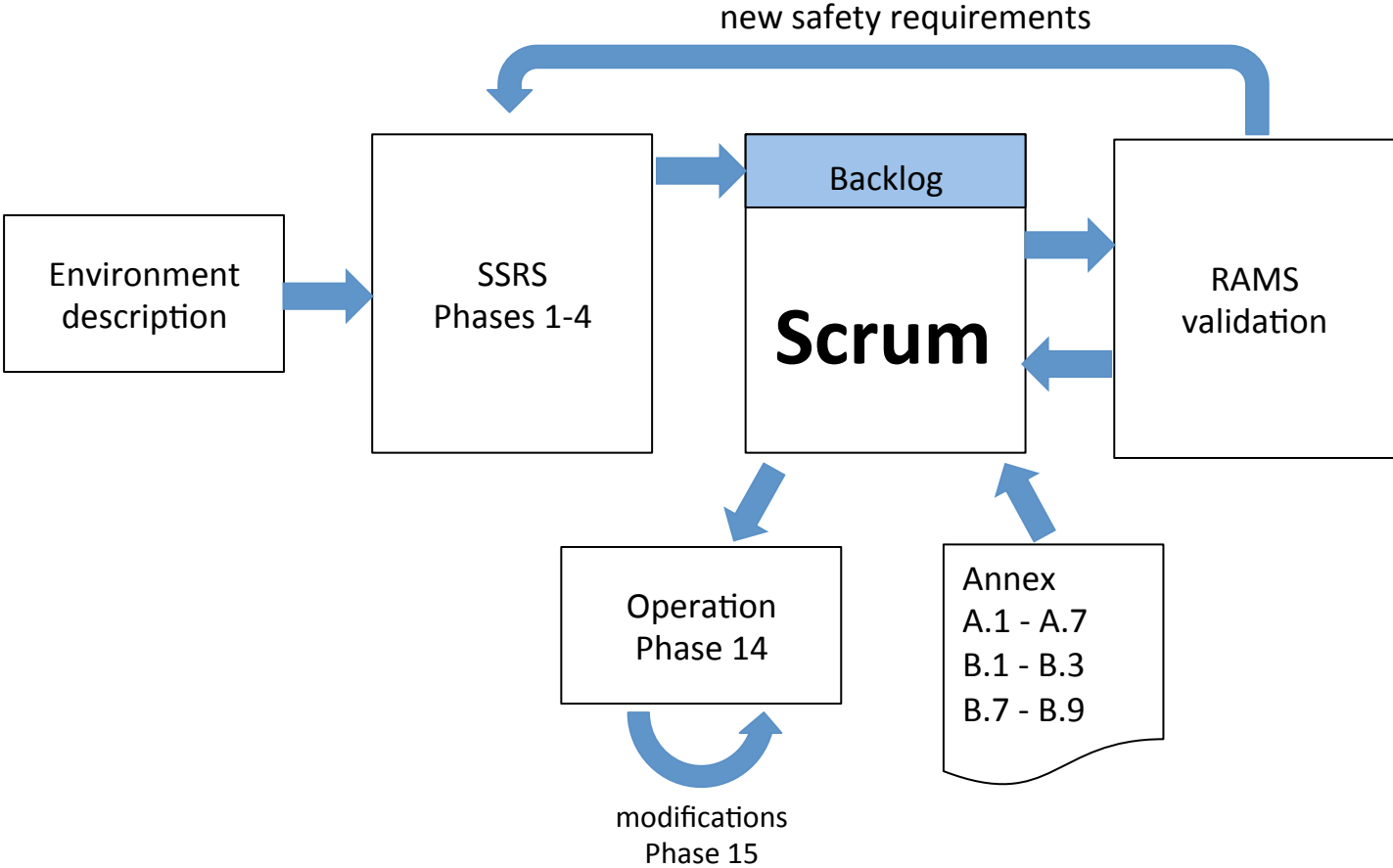


Why SafeScrum

SafeScrum will allow adaption of Scrum to the development of safety-critical systems.



Separation of concerns – IEC 61508



What is SafeScrum

SafeScrum is Scrum **plus** the extra activities needed to make the process compliant with IEC 61508.

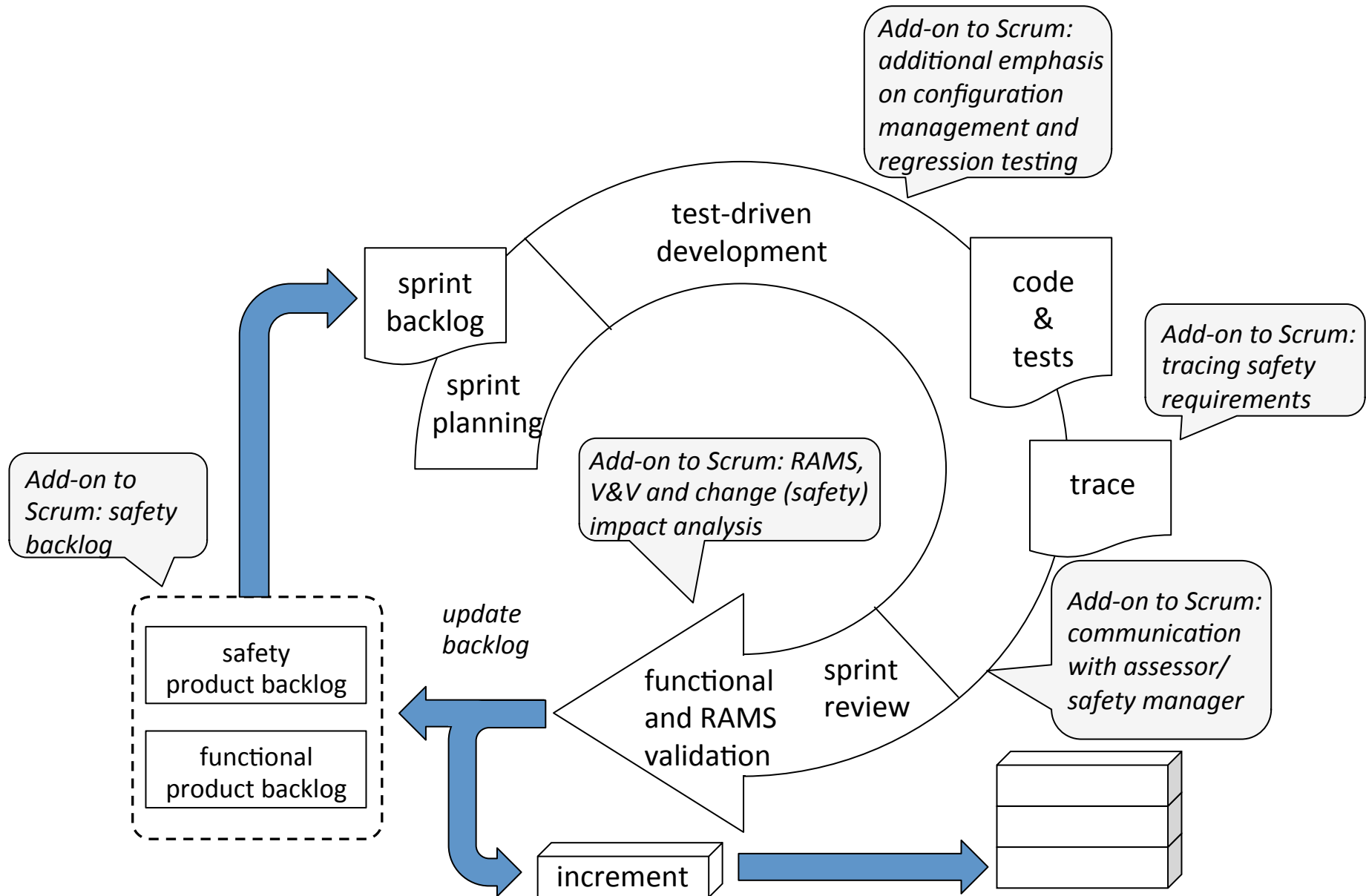
Thus, we

- keep the Scrum process in its entirety
- add the minimum set of activities needed to comply with the chosen standard

This approach has been

- applied to IEC 61508
- assessed for ISO 26262, IEC 60880 and EN 50128

SafeScrum

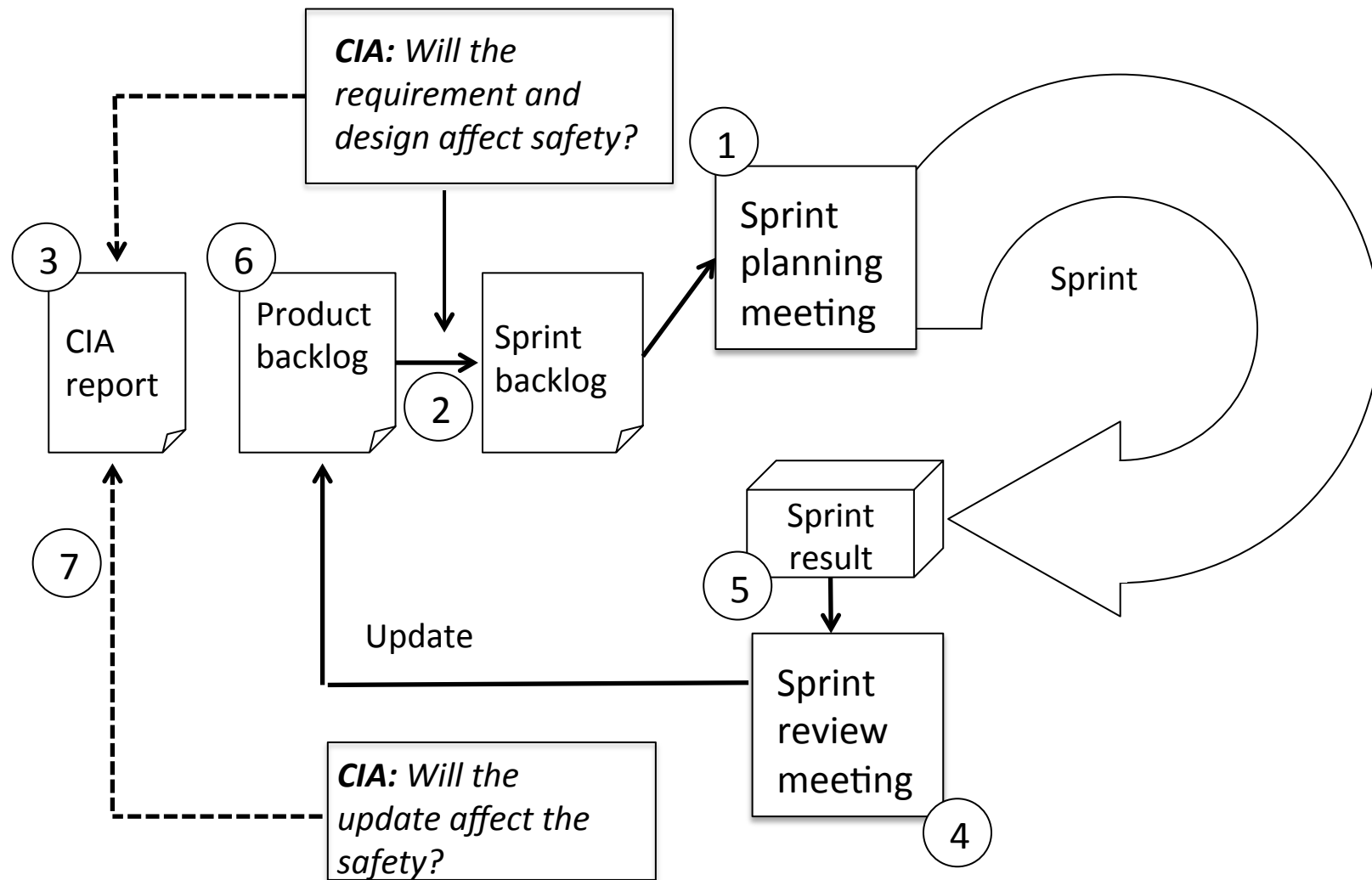


Adapting to industry needs

After the first SafeScrum versions, we have made two significant additions:

- Change Impact Analysis
- Quality Assurance and Control

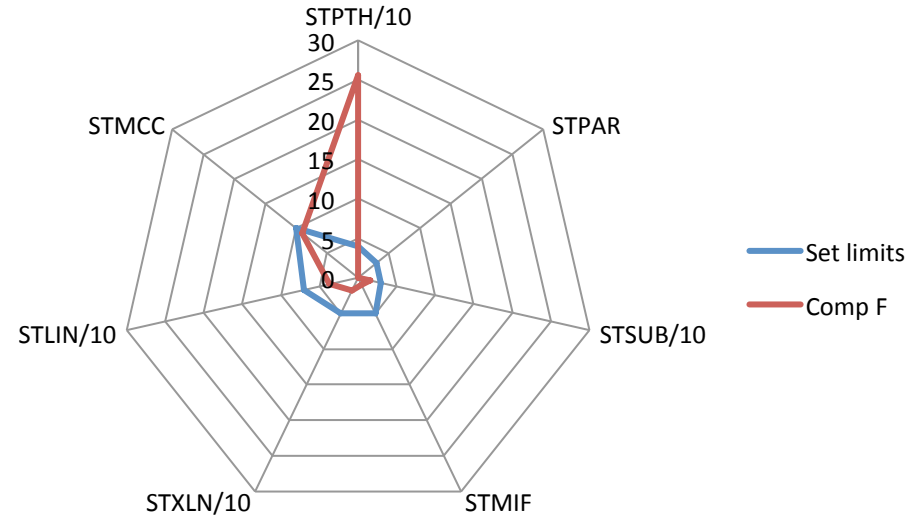
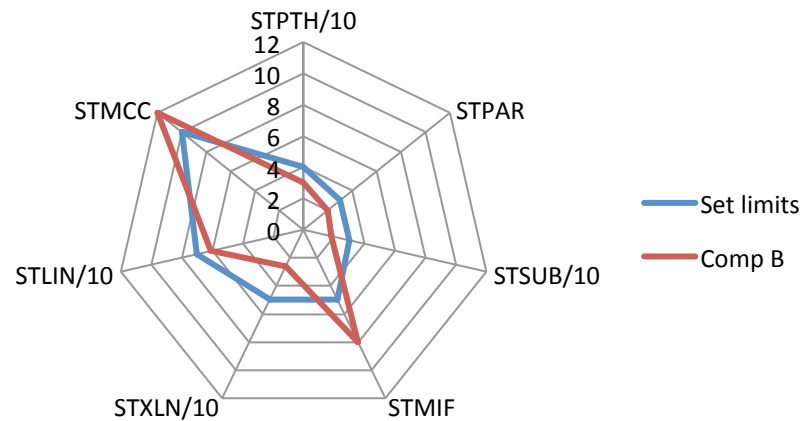
Change Impact Analysis



Quality Assurance and Control – 1

Metric	Explanation	Set limits
STPTH/10	Estimated Static Path Count / 10	4
STCYC	Cyclomatic Complexity	9
STPAR	Number of Parameters	3
STSUB/10	Number of Function Calls /10	3
STMIF	Maximum Nesting of Control Structures	5
STXLN/10	Number of Executable Lines / 10	5
STLIN/10	Number of Maintainable Lines of Code / 10	7
STMCC	Meyer's Number	10

Quality Assurance and Control – 2



Components with

- All values inside the “Set limits” will not be discussed any further
- Some values outside the “Set limits” will be discussed at the sprint review. There it will be decided whether the component must
 - Contain an explanation of why it has to be this way
 - Be rewritten so that the metrics are inside the limits

Conclusions

SafeScrum is an agile development process which enables the development company to

- Keep all the features that have made Scrum a success
- Add activities needed to make the process compliant with a wide range of standards for safety-critical systems development