



Development trends for the next generation of BoP products

ZBT Hydrogen Days | Duisburg | 05.02.205 | Dr. Maximilian Wick

TAKING RESPONSIBILITY IN A CHANGING WORLD



What does the FC Market look like today?



Key Challenges to be solved

Agenda

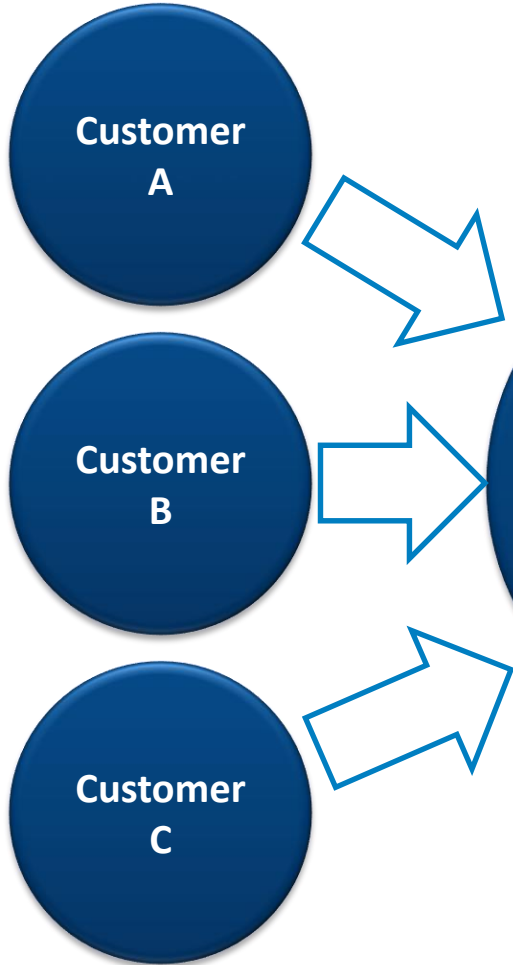
- 1 Standardization**
- 2 Modularization**
- 3 Digitalization**

Agenda

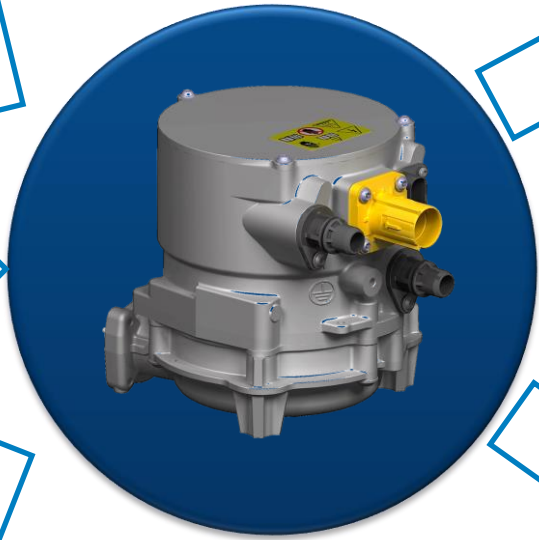
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One product – many specifications

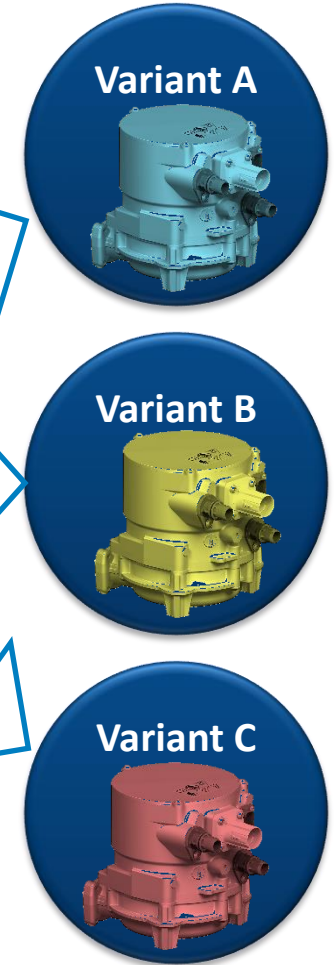
Requirements



Core product



Design Variant



Variation of:

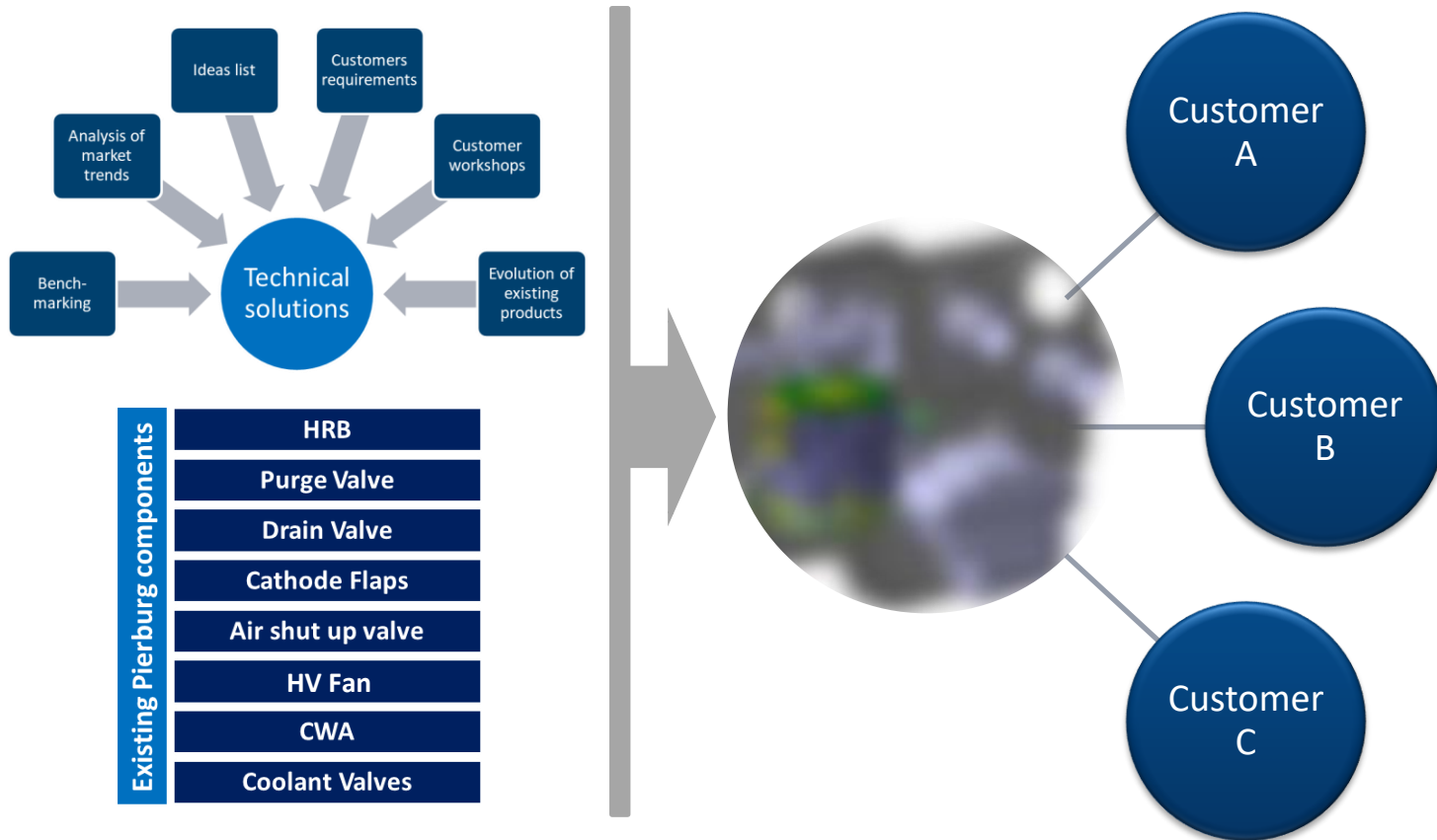
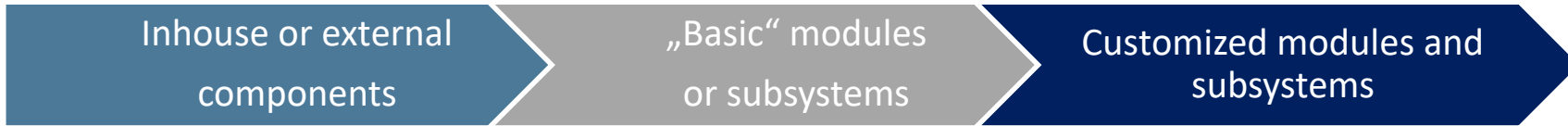
- HV+LV-Connector
 - Type
 - Orientation
- Media connection
 - Type
 - Diameter
 - Orientation
- Mounting
- Material
- ...

No competitive advantage for BoP component suppliers!

Agenda

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Development strategy for modules and subsystems



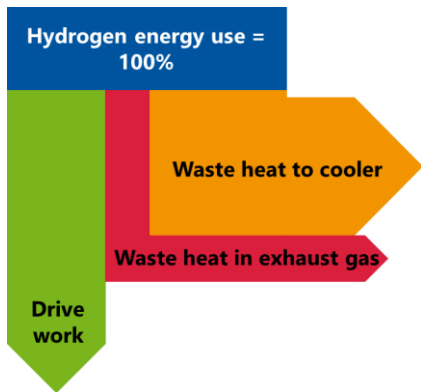
Benefits of Modularization:

- Integration of functions
- Optimized packaging
- Reduction of single components
- Reduction of interfaces
- Reduction of testing and validation
- Reduction of cost

Numerous discussions with customers have revealed a high interest for fuel cell modules

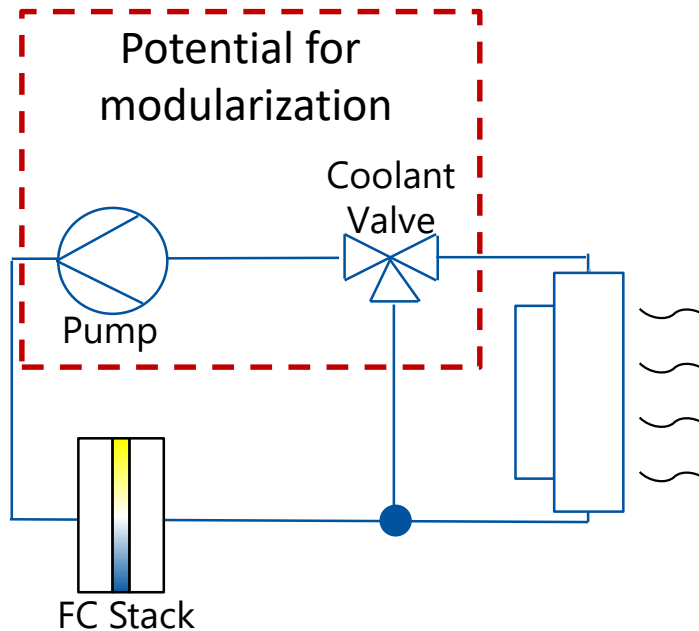


- Increased cooling requirement for fuel cell systems:

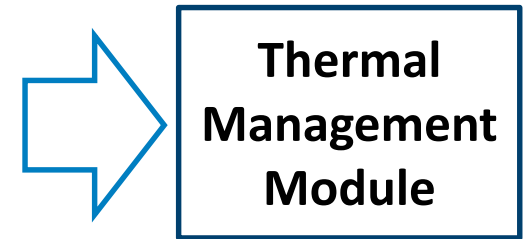
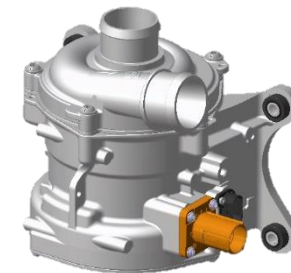


- Rapid heat-up, especially during frost start → Compact cooling circuit required!

- Coolant circuits in FCEV:



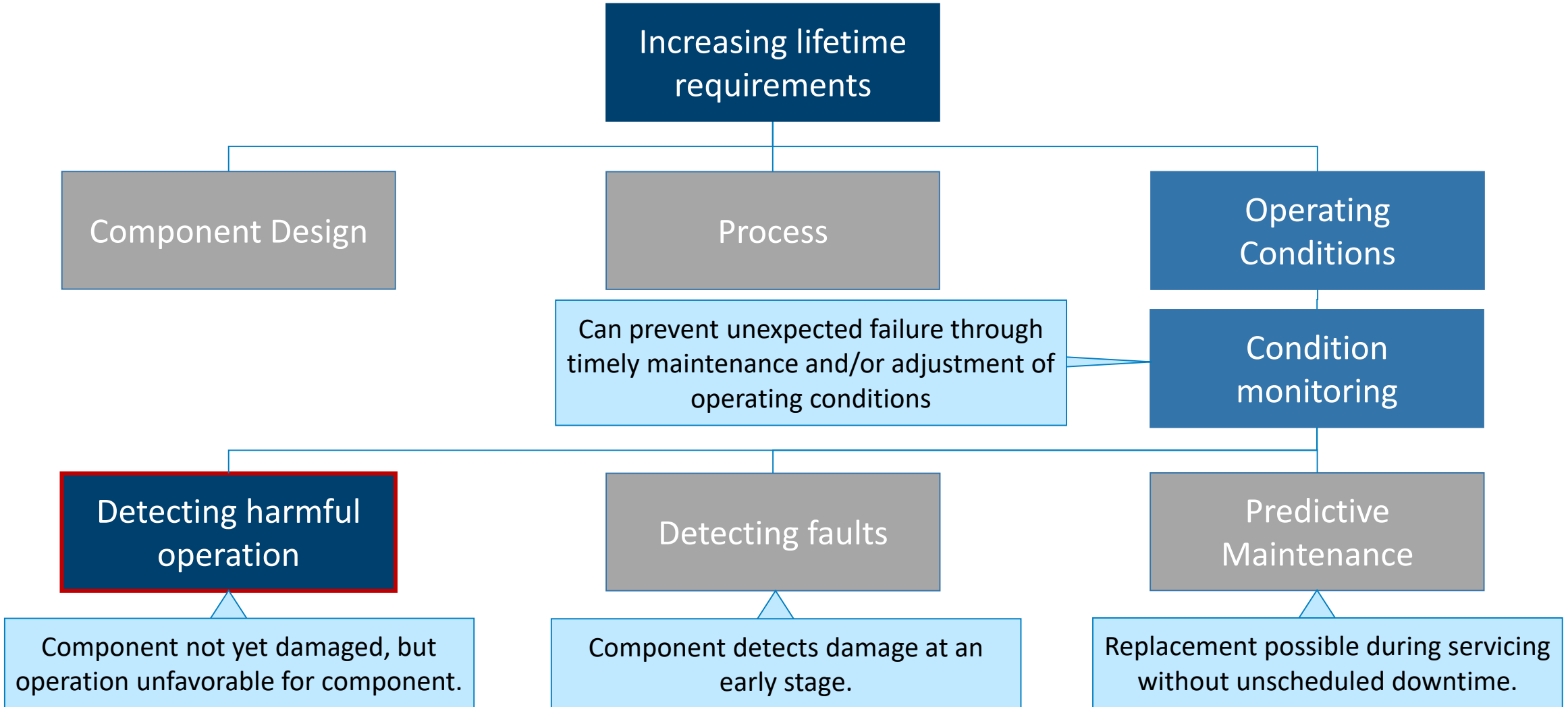
- Development of thermal management module



Agenda

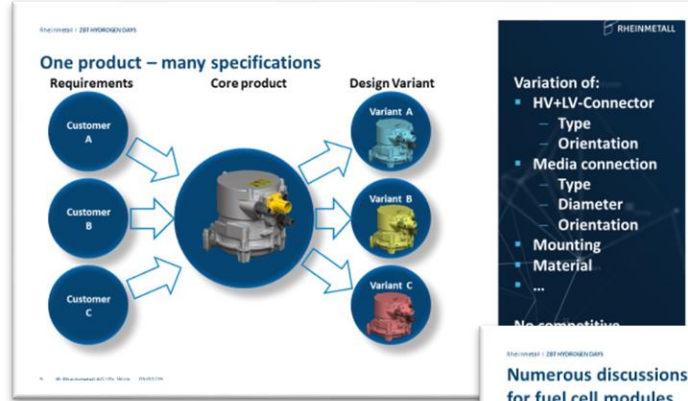
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Digitalization

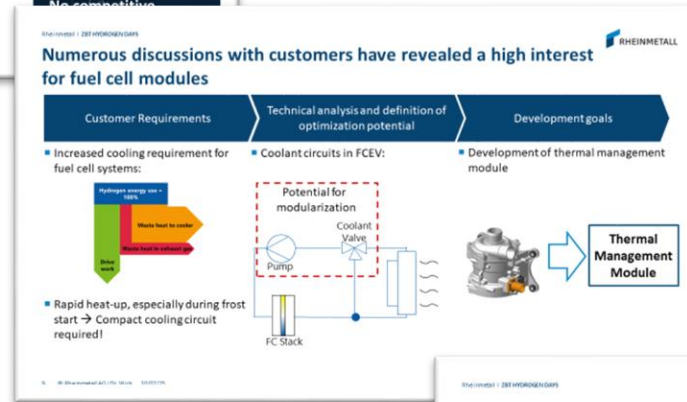


Summary

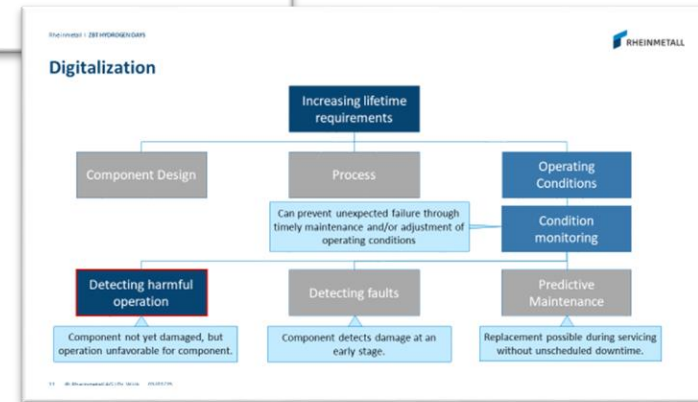
1 Standardization



2 Modularization



3 Digitalization



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