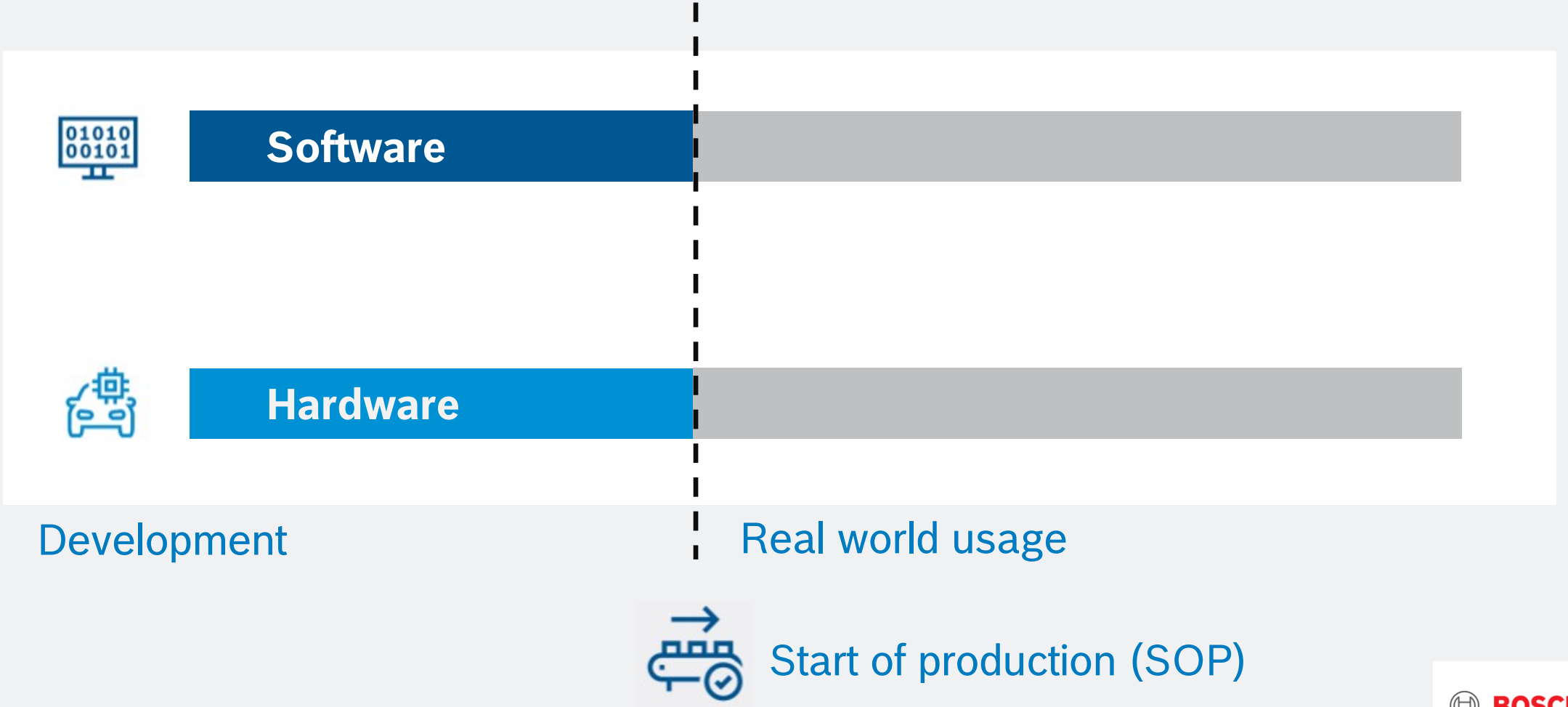
Optimizing Software-defined Value Streams

Felix Meyer zu Driehausen
Dr. Matthias Burger

Cross Domain Computing Solutions
Robert Bosch GmbH

Software-defined Value Streams

Yesterday: Hard- and Software coupled



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Software-defined Value Streams

Yesterday: Max. re-use by step-wise integration of common parts

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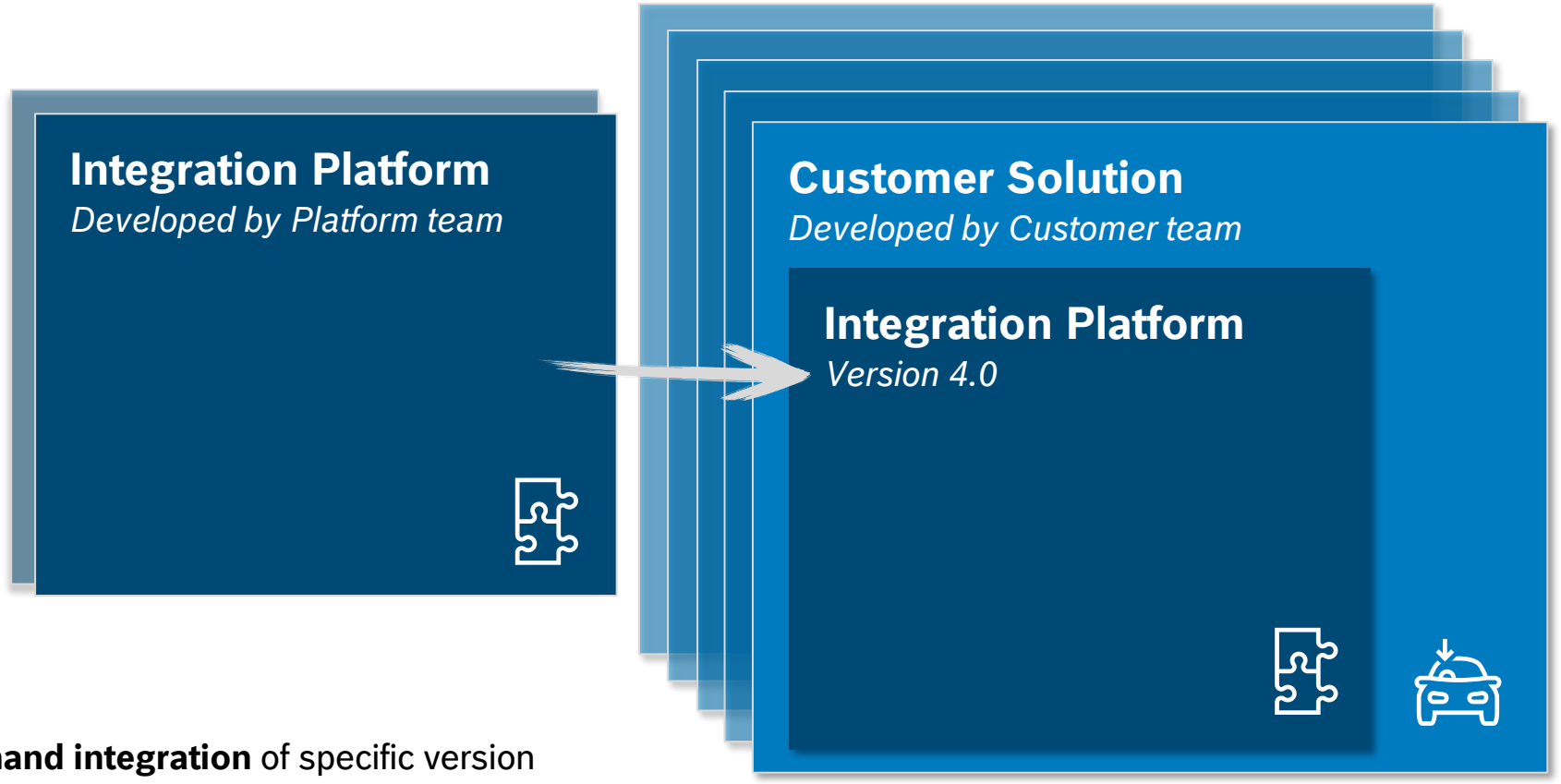

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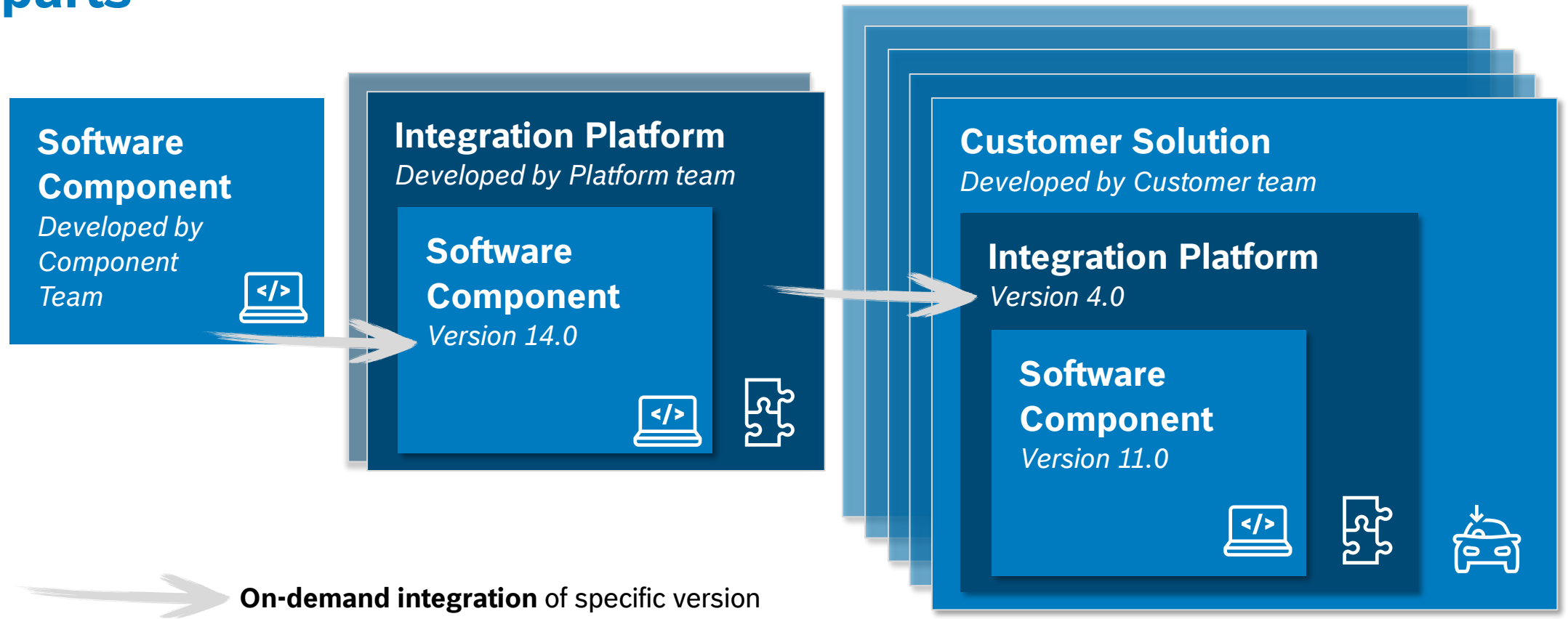

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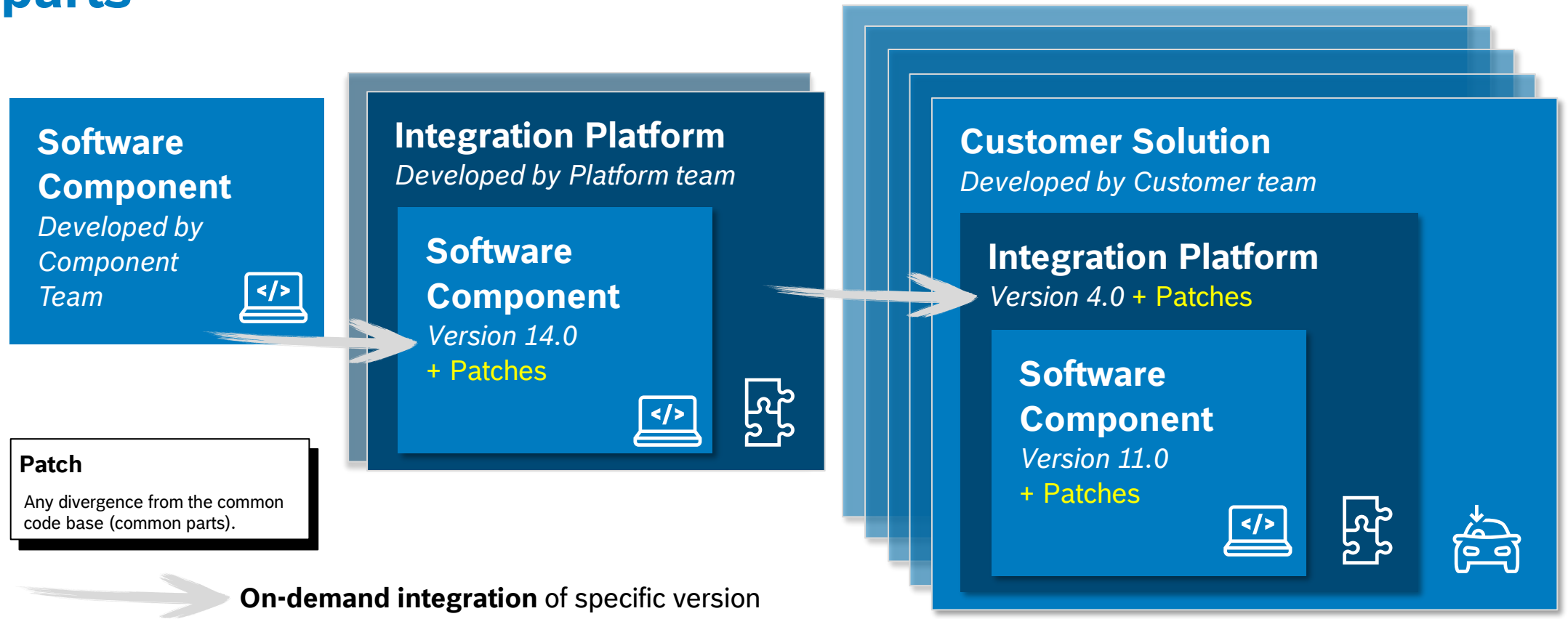

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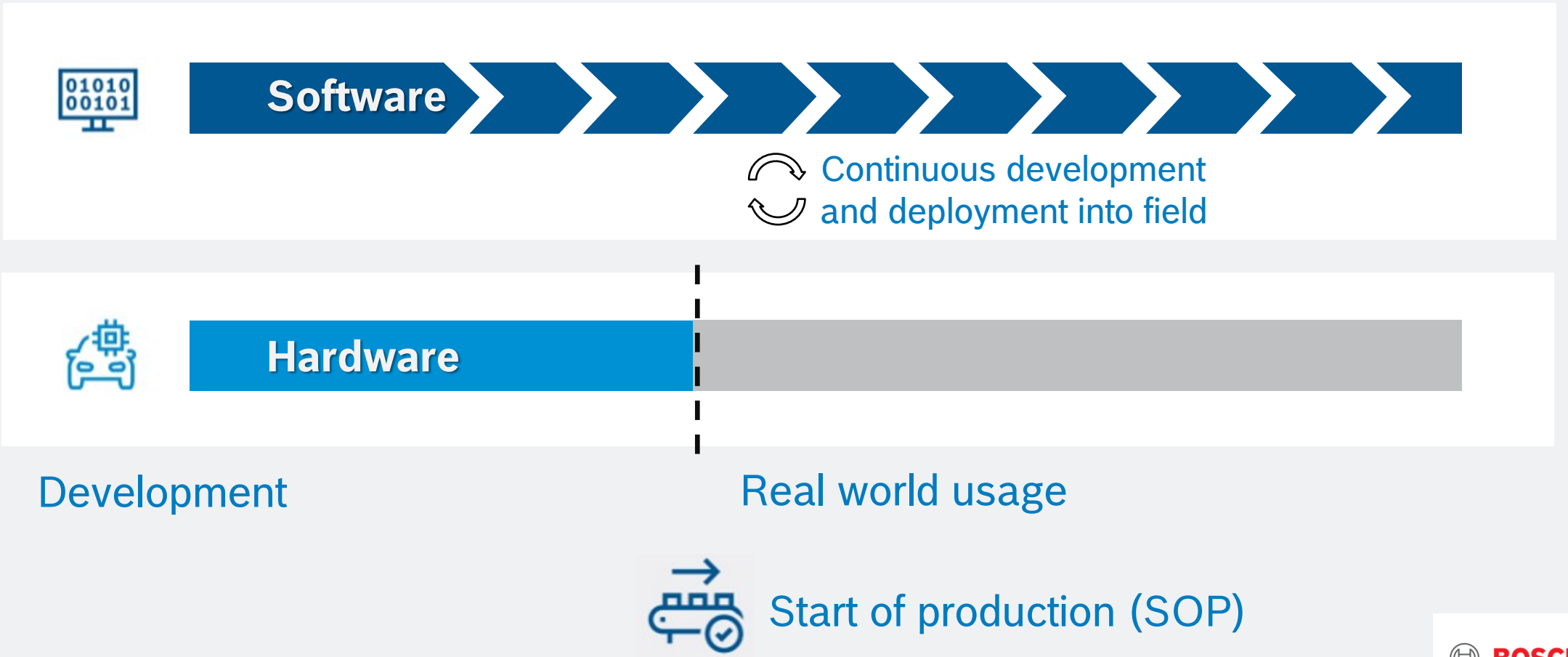
Software-defined Value Streams
Tomorrow: Hard- and Software de-coupled



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Software-defined Value Streams

Leading the change

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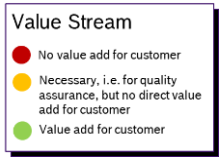
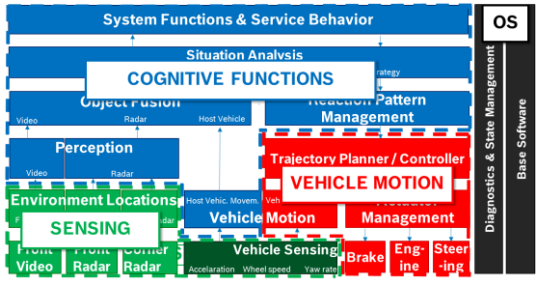
Software-defined Value Streams
Leading the change

Value stream analysis



Variant handling in SW Architecture



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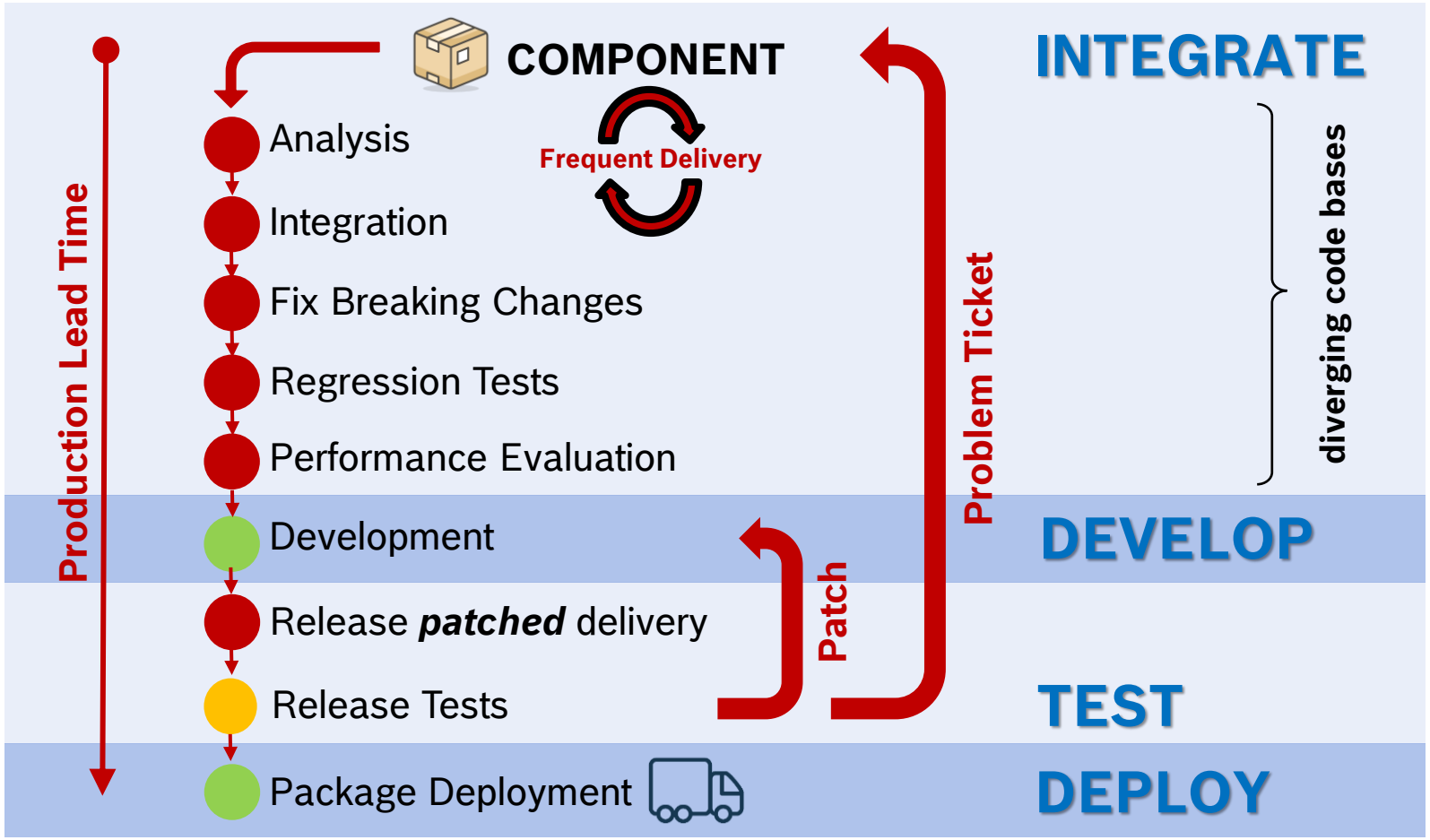
Software-defined Value Streams
Value Stream Analysis: Integration Platform



Production Lead Time

Timespan from delivery of first part to production finished and ready for release.

Value Stream

- No value add for customer
- Necessary, i.e. for quality assurance, but no direct value add for customer
- Value add for customer

Patch

Any divergence from the common code base (common parts).

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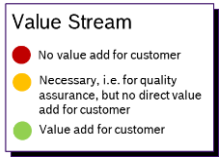
Software-defined Value Streams
Leading the change

Value stream analysis



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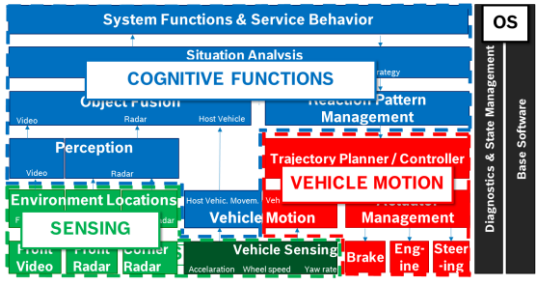

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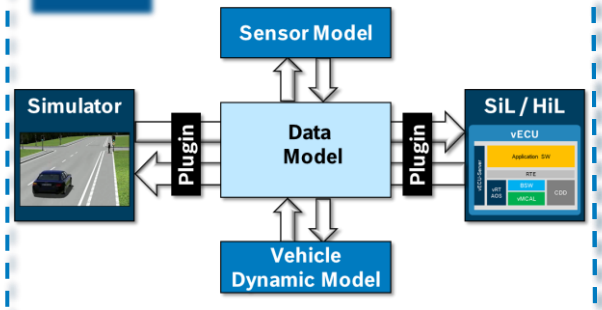
Software-defined Value Streams
Leading the change

Legend
- Technical Debt
- Tools
- Architecture
- Tests
- Common Code
- Organization

Architecture M1 *Process/Methods/Tools* M2 *Organization* M3 *Inspect & Adapt*

Value stream analysis

Test framework



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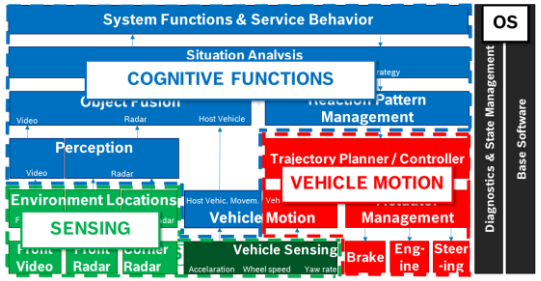
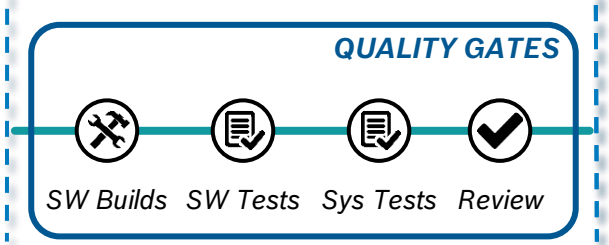


Quality gates



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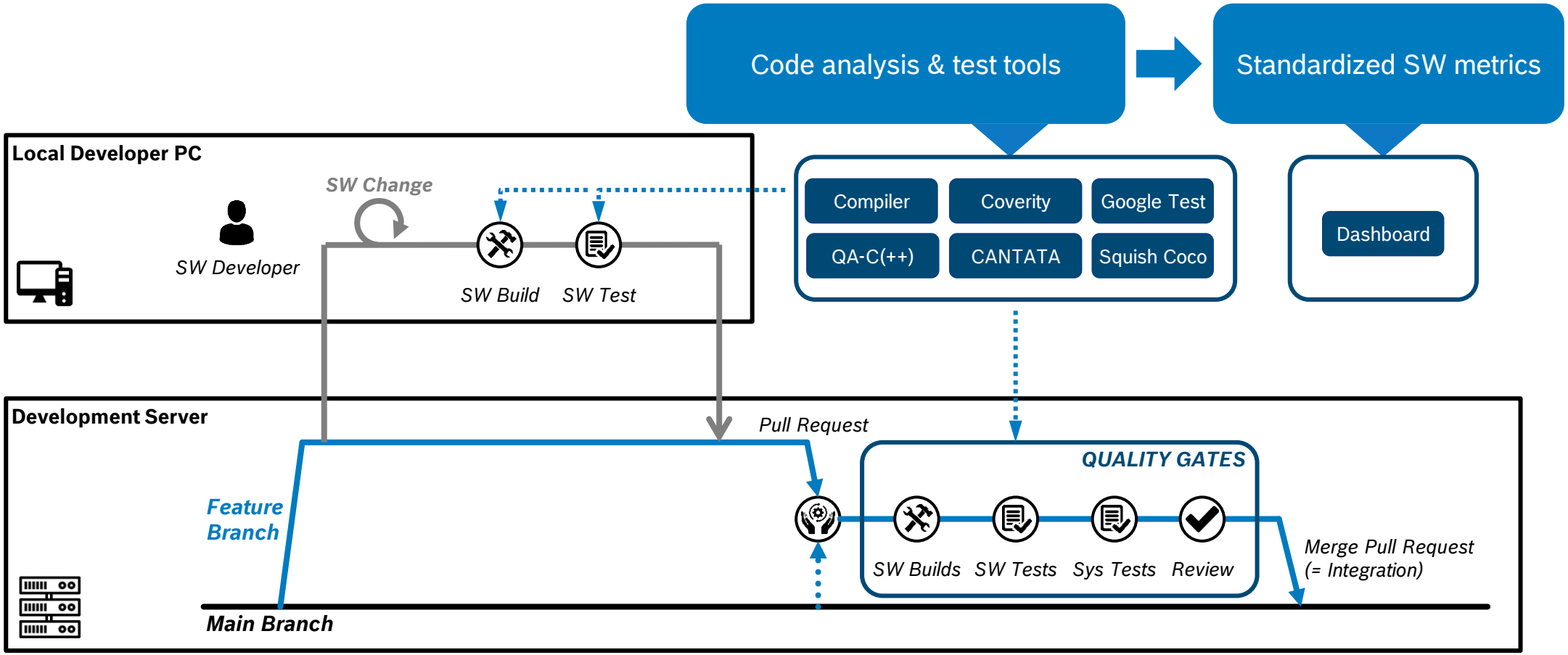

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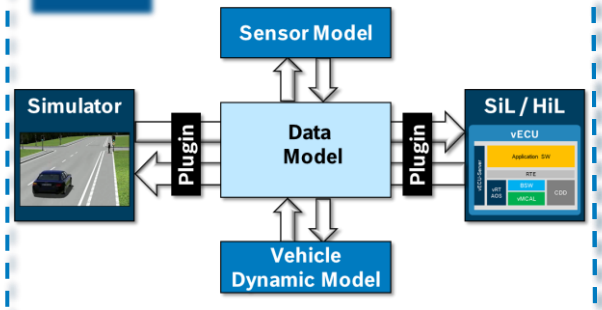

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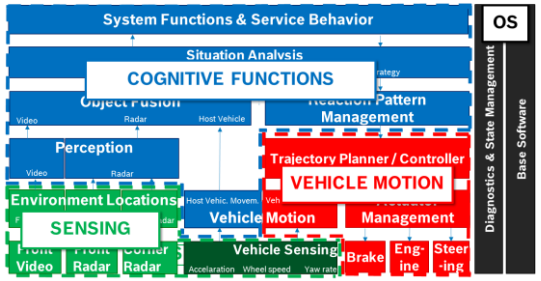

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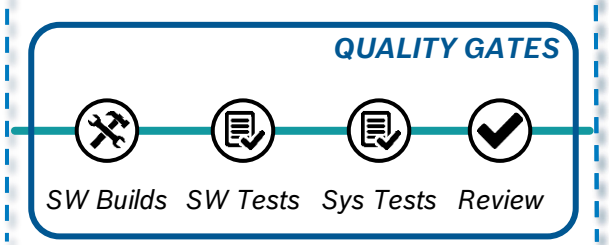

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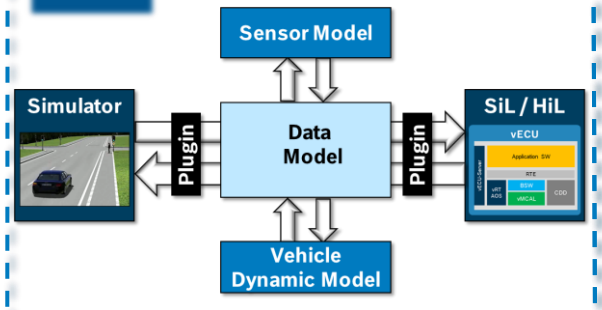
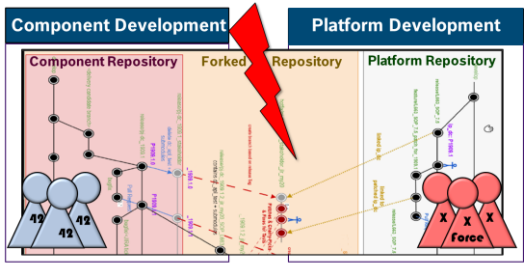


Common code base



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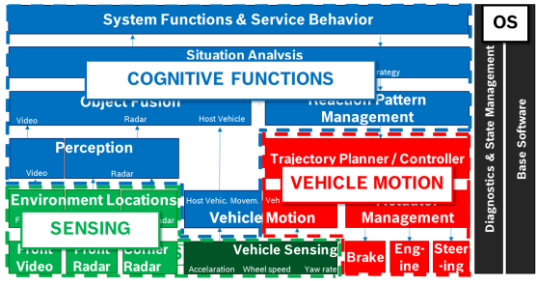

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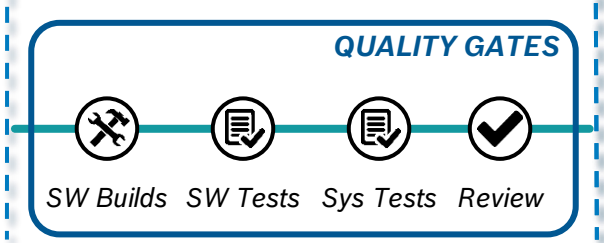
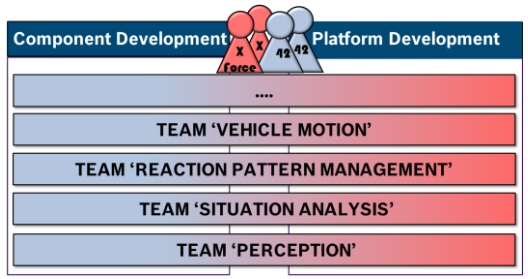


Competence centers



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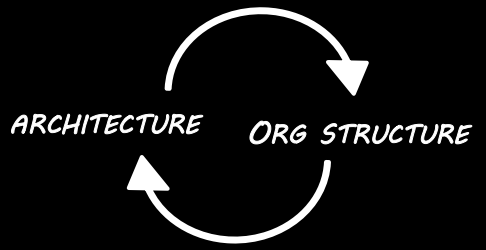
Software-defined Value Streams
Conway's Law

"Organizations which design systems [...] are constrained to produce designs which are copies of the communication structures of these organizations."

[Melvin Edward Conway]



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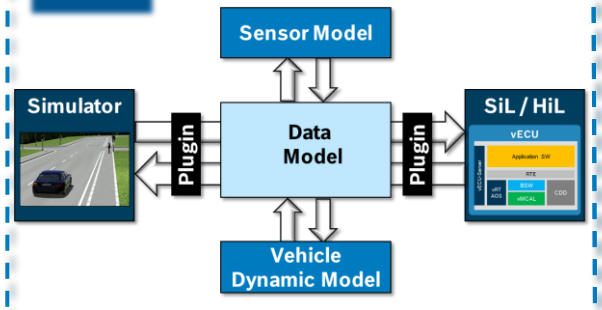

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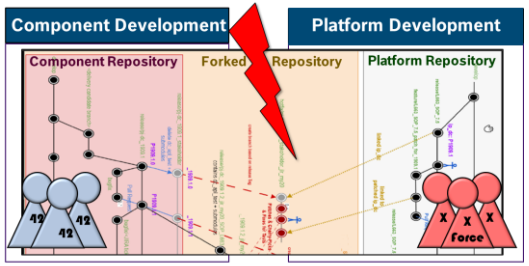

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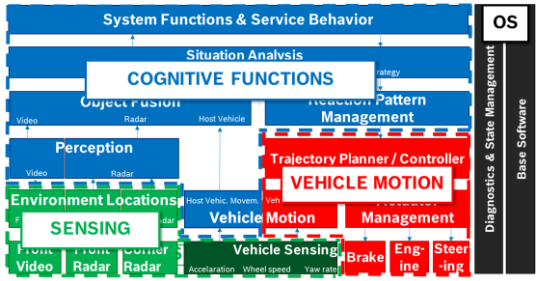

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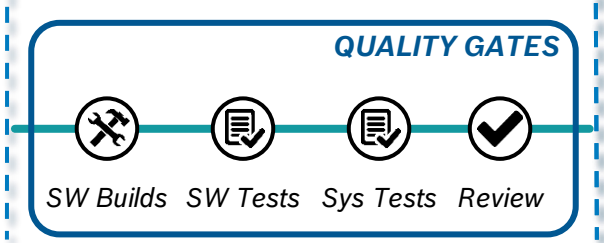

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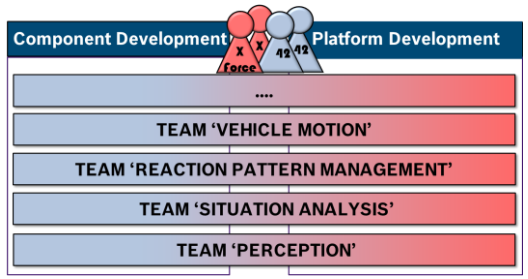

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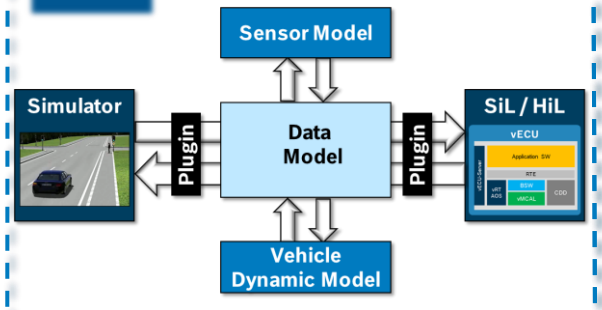

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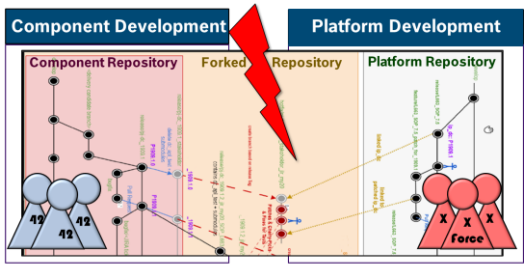
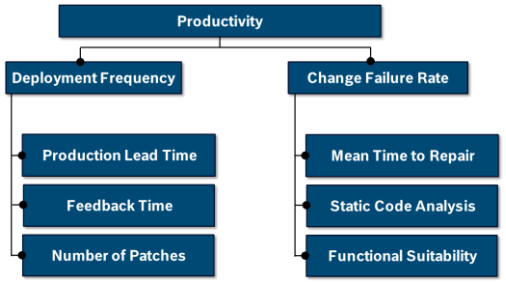


Productivity KPIs



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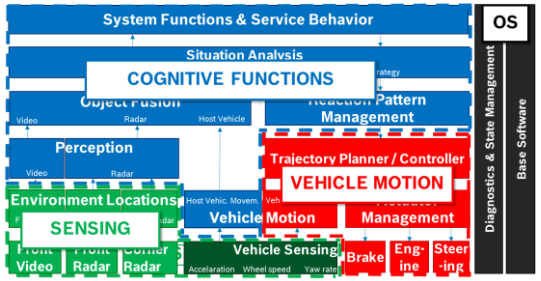

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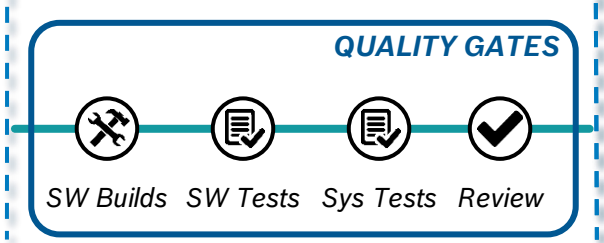

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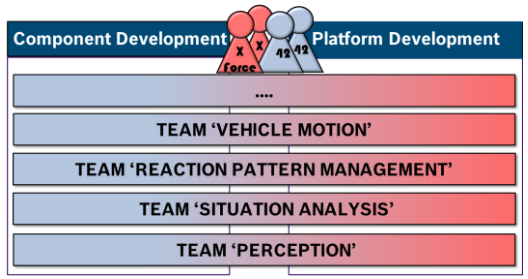
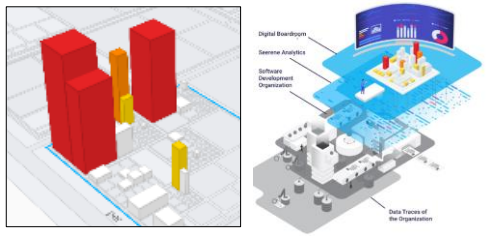


Root cause analysis



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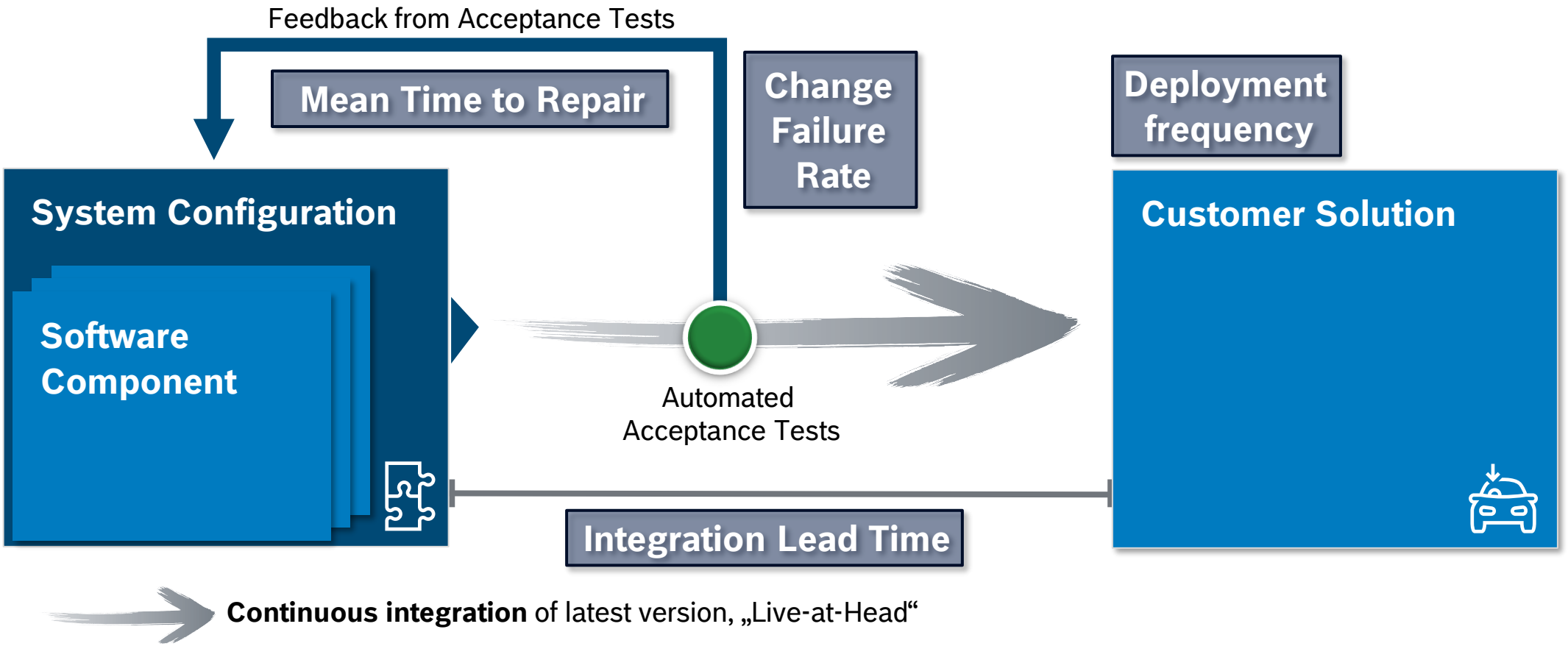
Software-defined Value Streams
Continuous integration along the entire value stream



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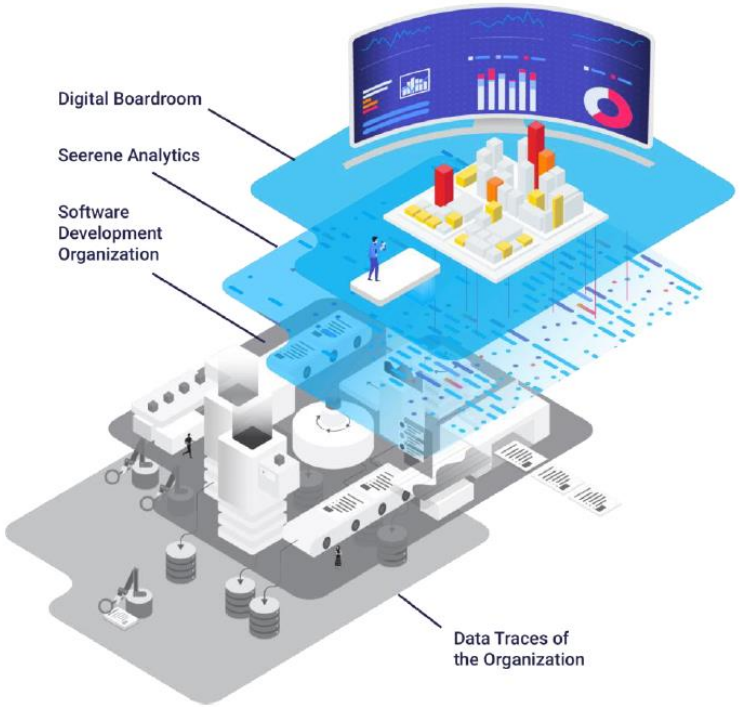
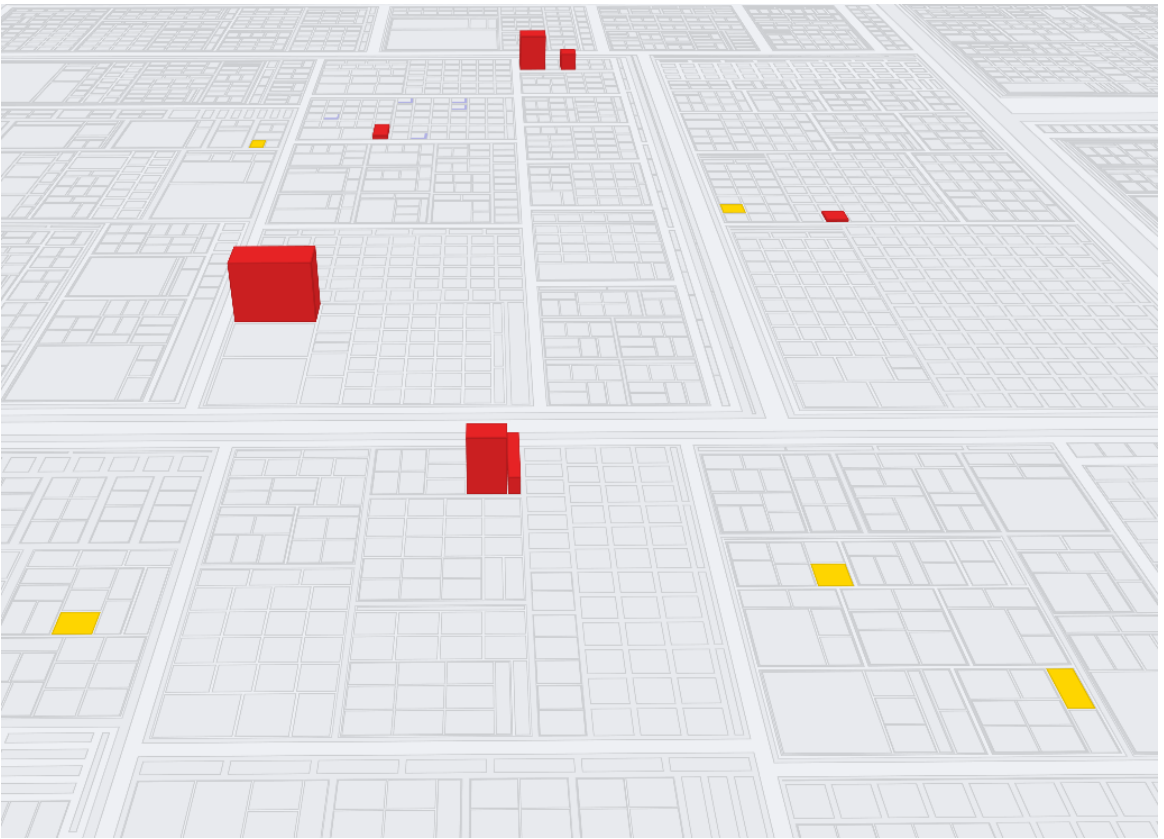
Software-defined Value Streams
Root cause analysis: Patch Monitoring



The Age of Software Factories

www.seerene.com



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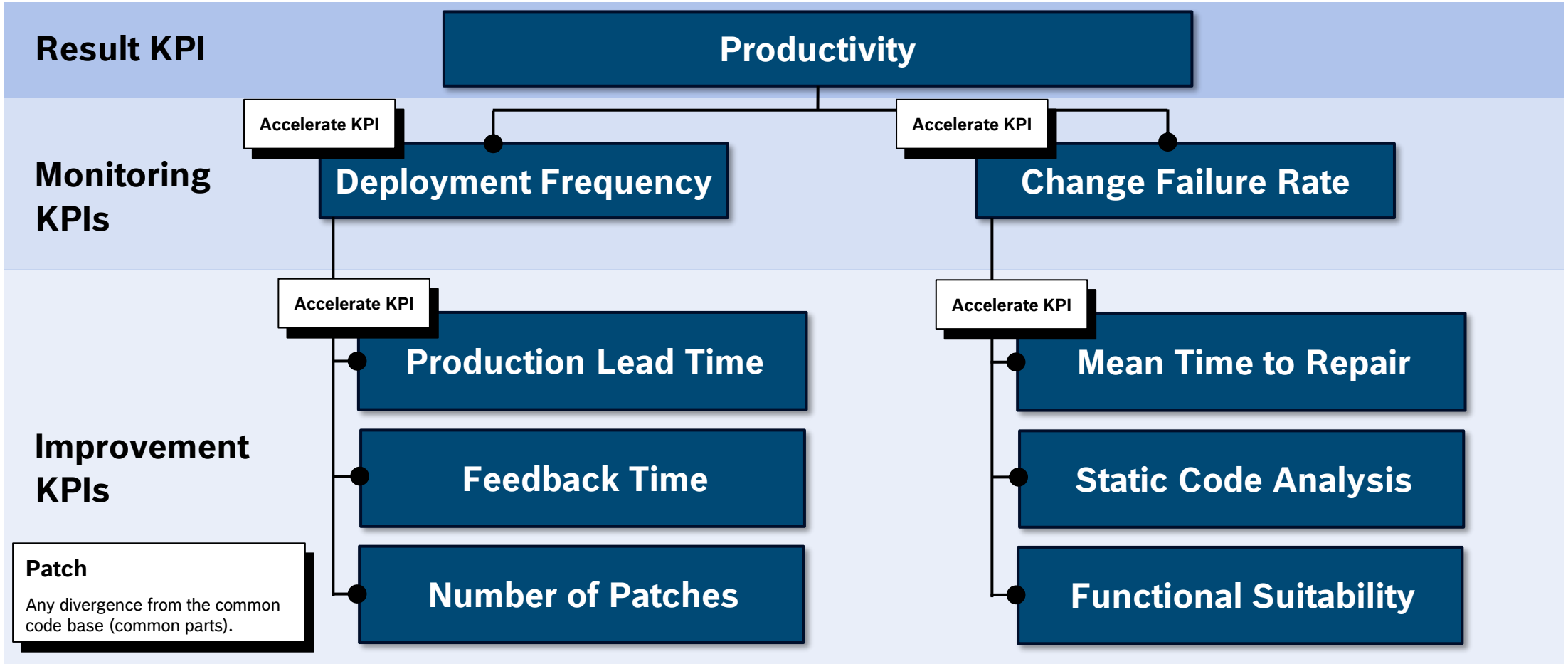
Software-defined Value Streams
Key Performance Indicators and Business Value



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Software-defined Value Streams
Key take-away

- **BUSINESS value is only created by continuous deliveries towards the paying customer.**
- **Variant handling in software ARCHITECTURE is crucial for minimal production lead time and maximal reuse.**
- **Inspect and adapt the engineering PROCESS based on productivity KPIs and root cause analyses (gemba walk)**
- **Engineering ORGANIZATION is deployed along architectural components with common targets and accountability.**

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