Closed-loop Industrial IoT: giving the model-based ecosystem a reality check

GLOBAL PRODUCT DATA INTEROPERABILITY SUMMIT 2019

Industry Challenges

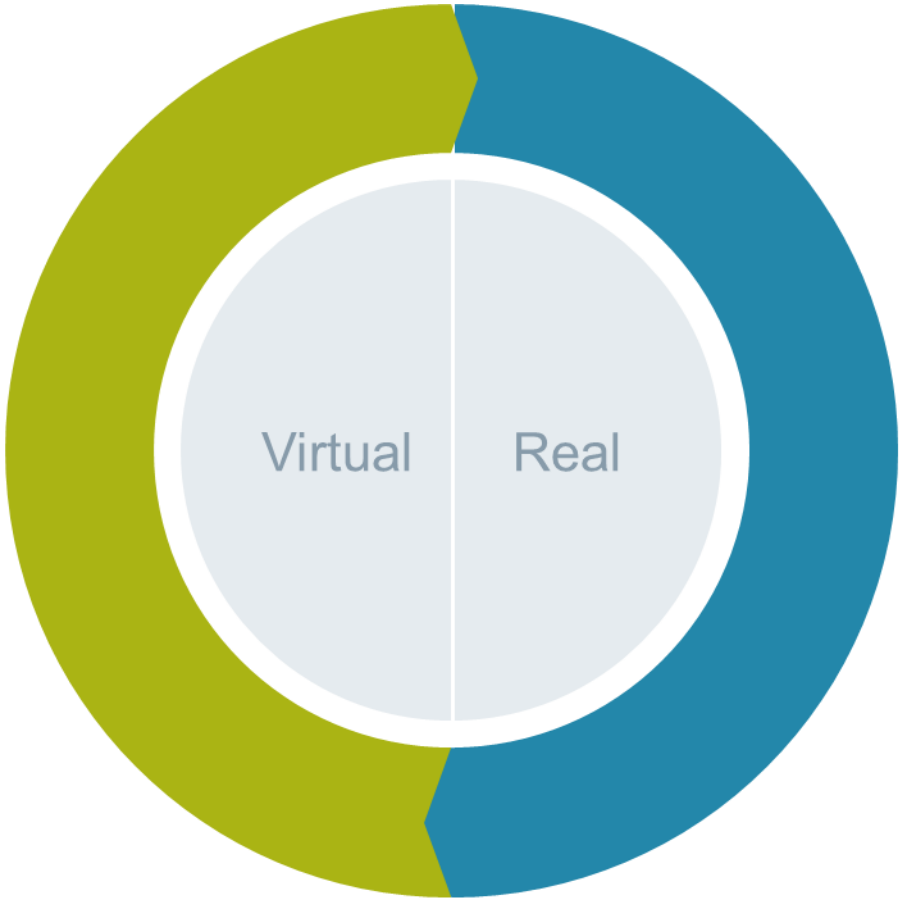
How to avoid poor program performance and cope with increasing **product complexity**?

How to remain competitive within global competition while overcoming **cost & schedule challenges**?

How to reduce the growing **backlog** but mitigate the increased risk throughout the supply chain?

Combining the real world with the virtual world

Software



Automation

Integrating and digitalizing of the entire value chain

This is accomplished by creating a holistic virtual representation of the value chain: the Digital Twin

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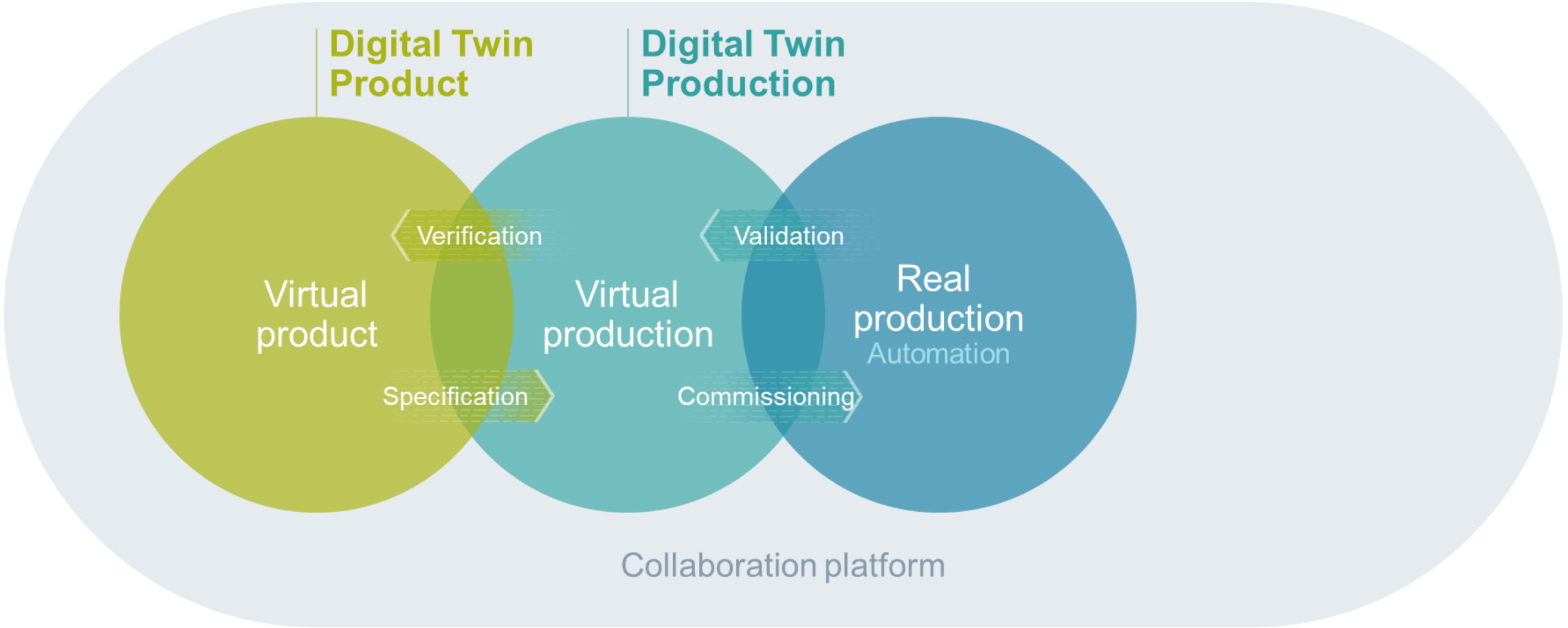

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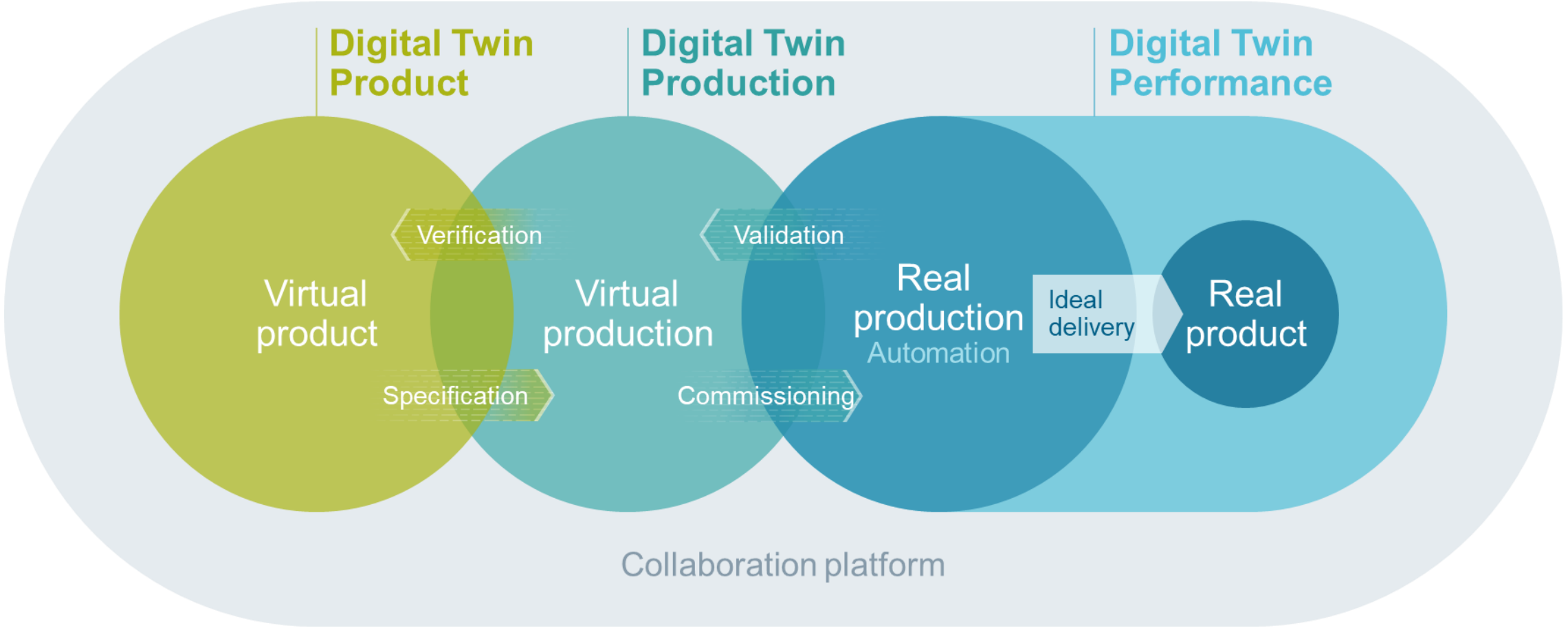

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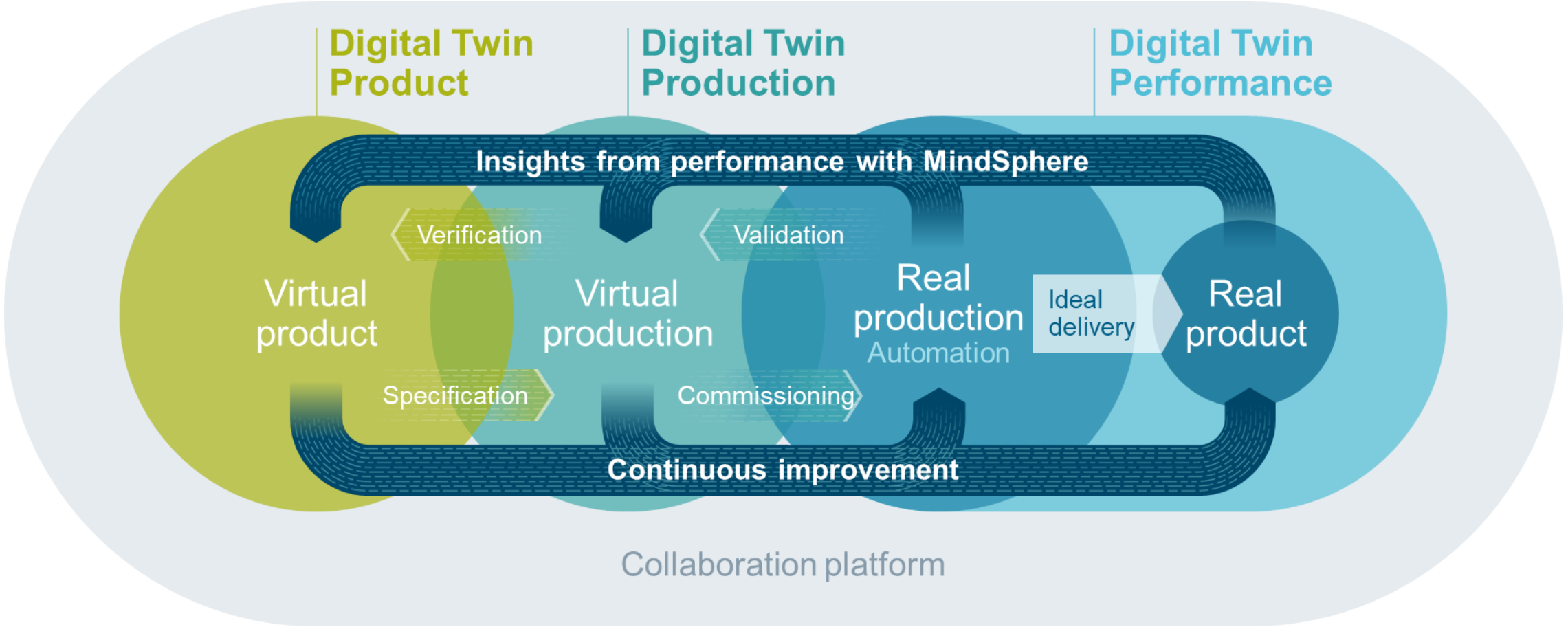
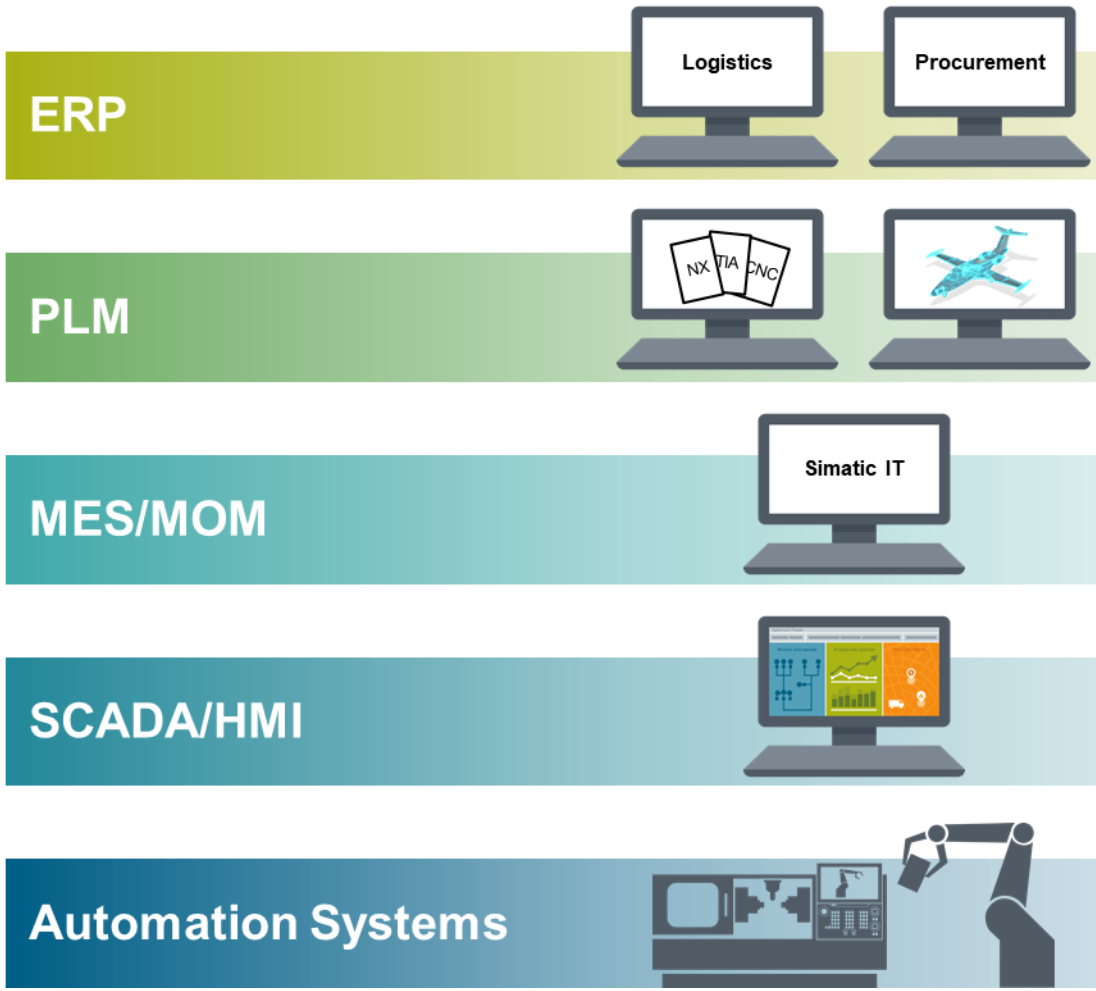
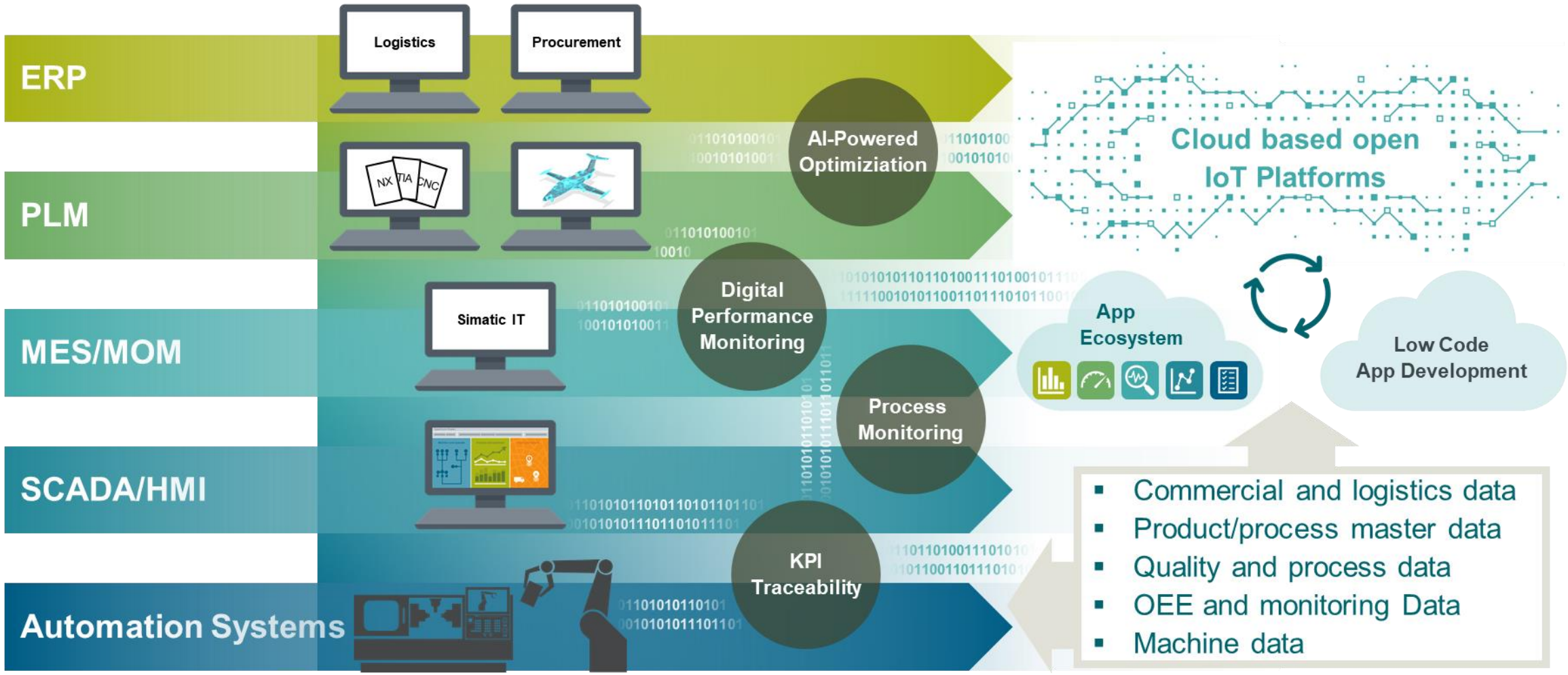


Traditional hierachical structures lack interconnectivity



- Data exchange is often limited to file converting and basic I/O
- Connectivity to different layers is limited or not intended
- Constraints for flexible design and web applications
- Limited computing power for high-frequency process evaluation

Cloud based open IoT Platforms breaks silos, enables vertical and horizontal integration to generate smart data



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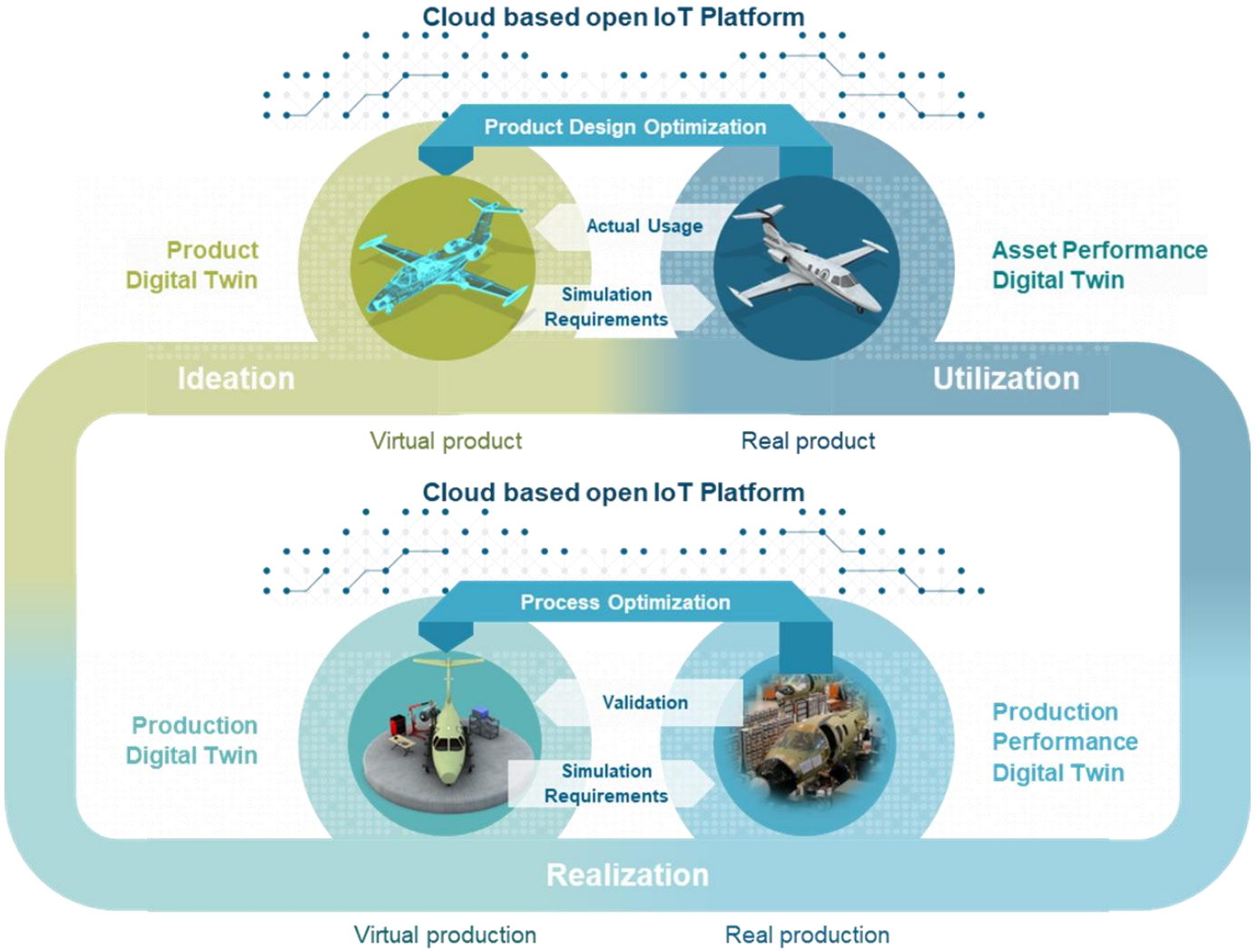
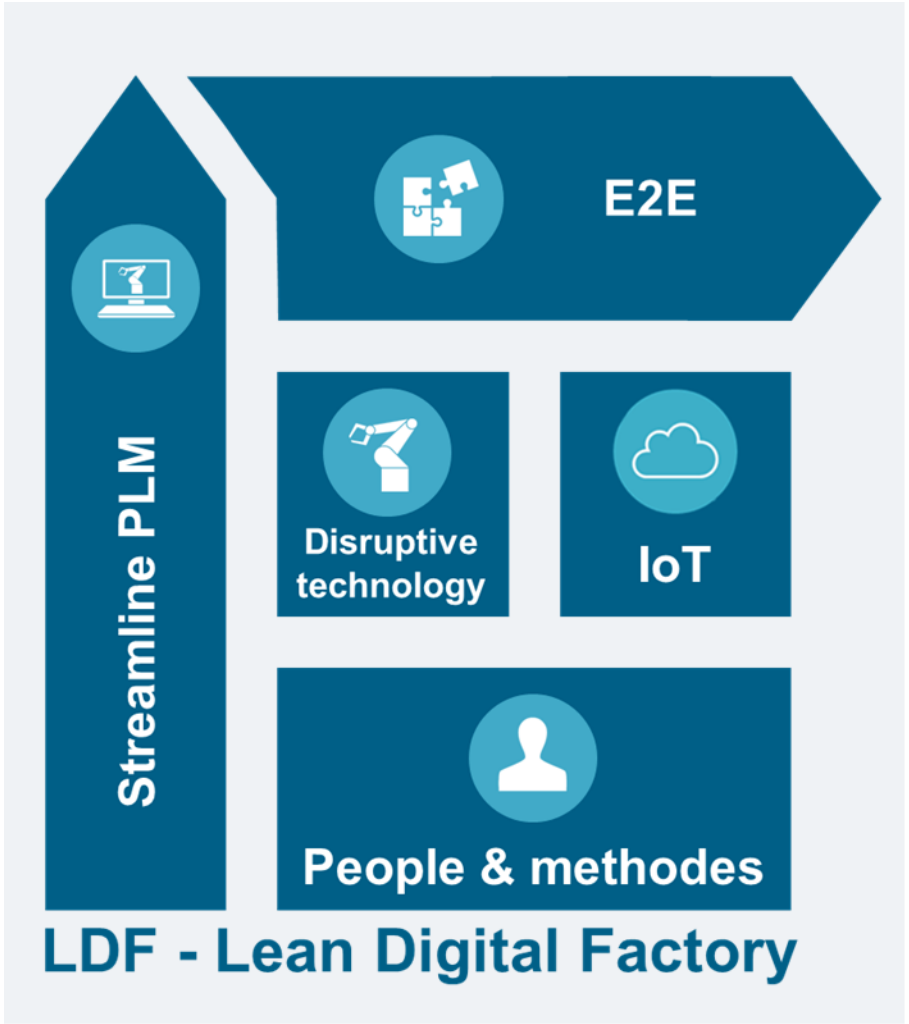


Realizing the Vision: Siemens Lean Digital Factory Approach



Streamline PLM

Digital twin product, digital twin production, digital twin data

End 2 End

Cyber-physical systems, self learning systems, digital consistency, flexibility

IoT operating system

Cloud computing, tracking and tracing, analytics, artificial intelligence

enabler

Disruptive technology

Additive manufacturing, automated guided vehicle, robotic, virtual reality, augmented reality

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People and methods

Digital mindset, flexible collaboration, digital guidance, automated administrative process

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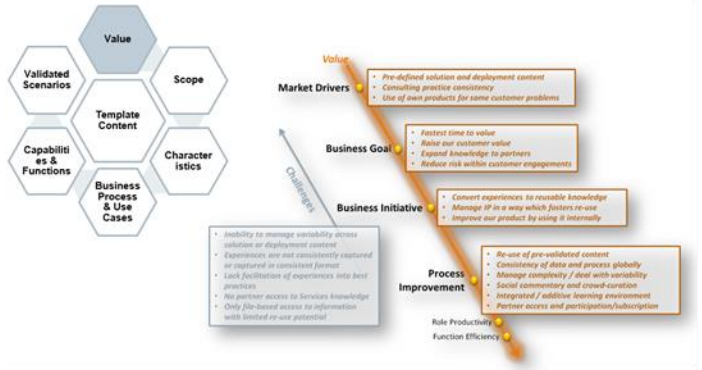
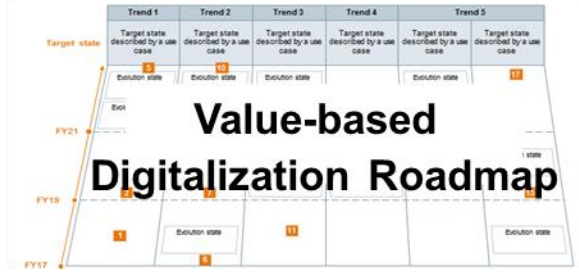
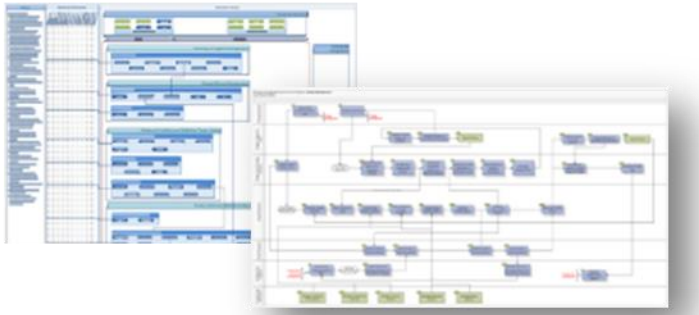
Value: Market-driven business value definitions



Adoption: Continuous monitoring and refinement



Solution: Process-centric solution definition



Validation: technology alignment, time-to-value prioritization, gap assessment/improvement

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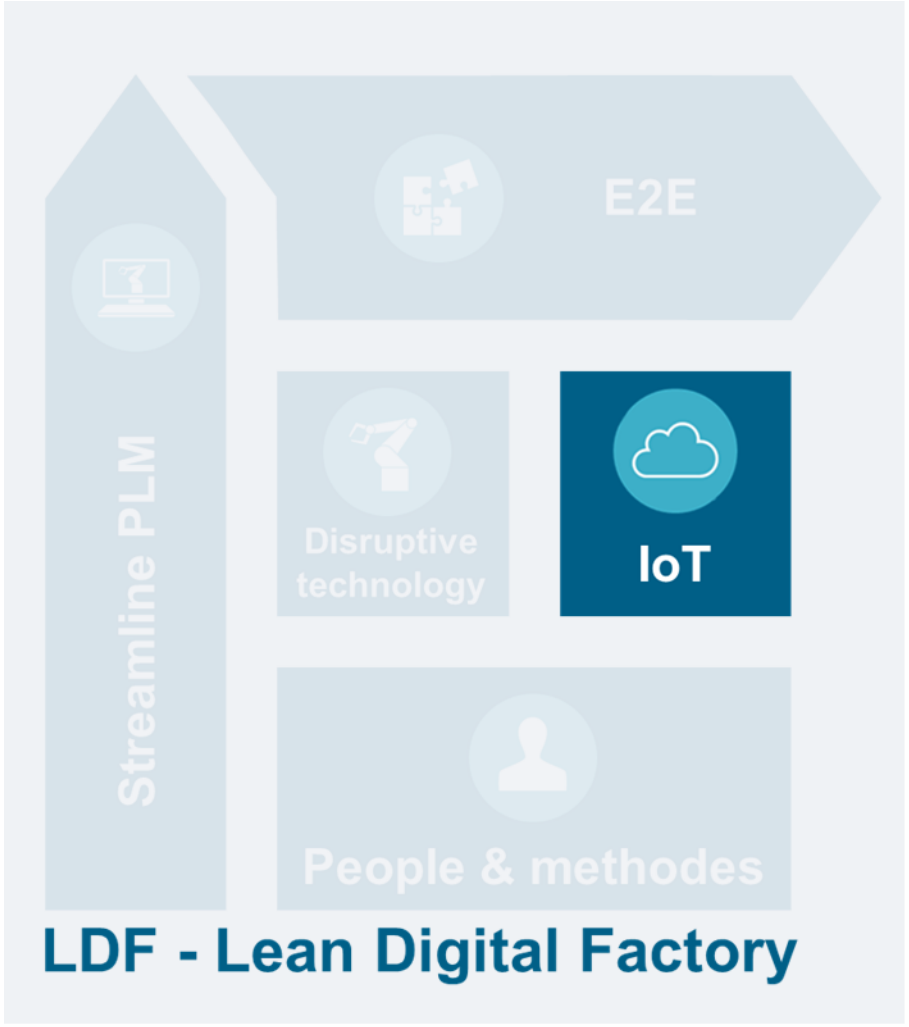

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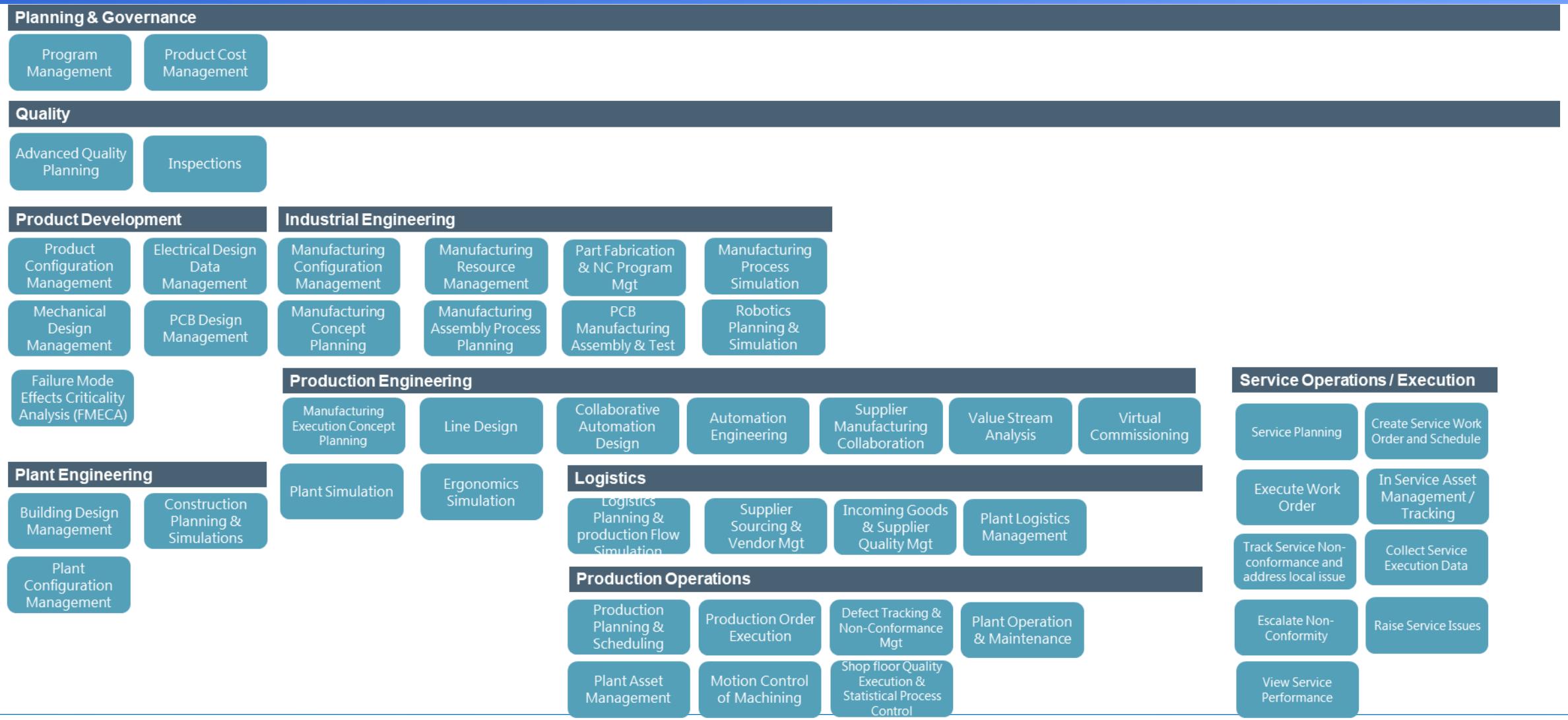
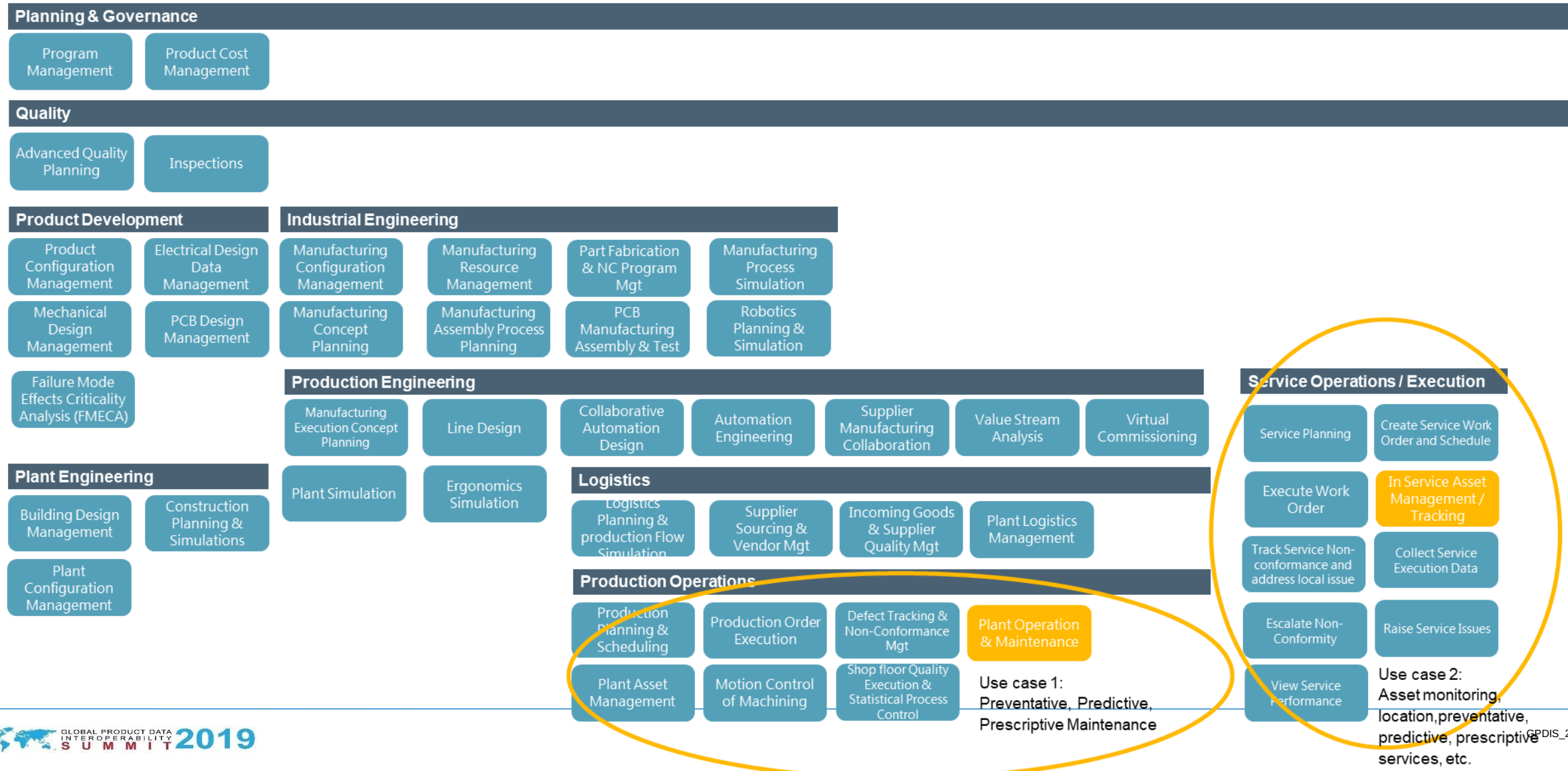
Holistic IIoT: Begin with a process-centric approach



Holistic IIoT: Identify starting points with near term, realizable value



Holistic IIoT: Close the interoperability loop to maximize ecosystem value

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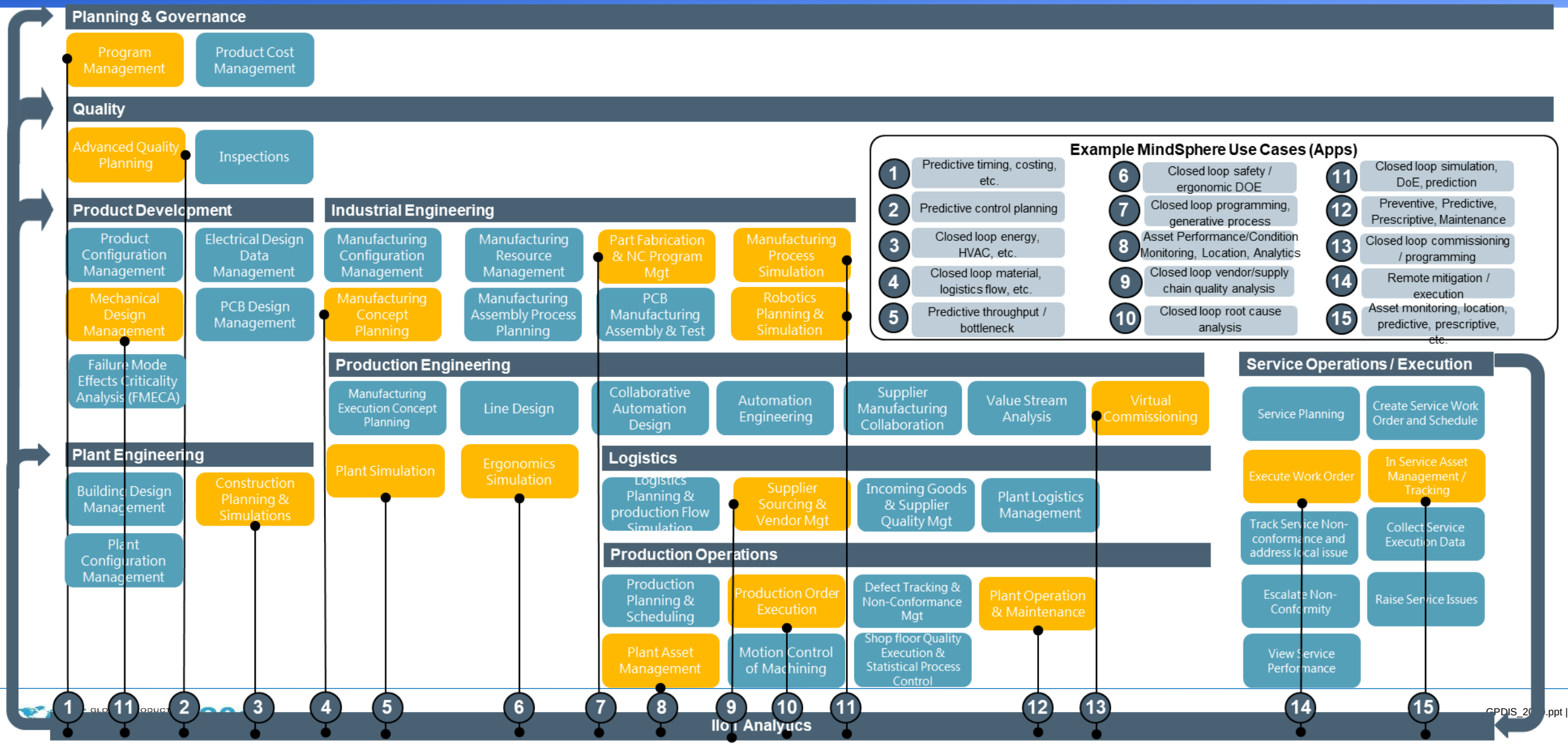

Path to Closed Loop, Model Based Ecosystem

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