



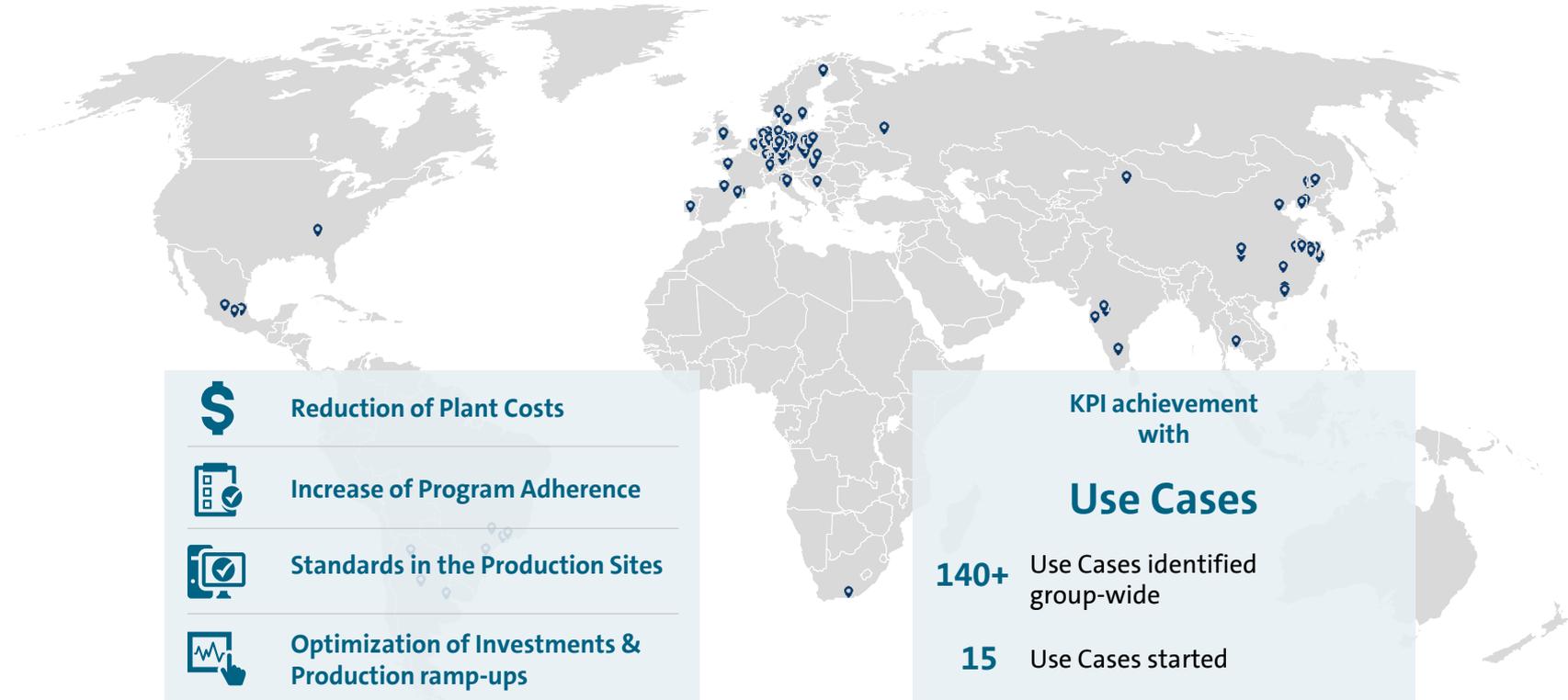
Industrial Cloud

Managementsitzung – 23rd September, 2019

Volkswagen @ Glance



Focus on all 122 Production Sites worldwide



Reduction of Plant Costs



Increase of Program Adherence



Standards in the Production Sites



Optimization of Investments & Production ramp-ups

KPI achievement with

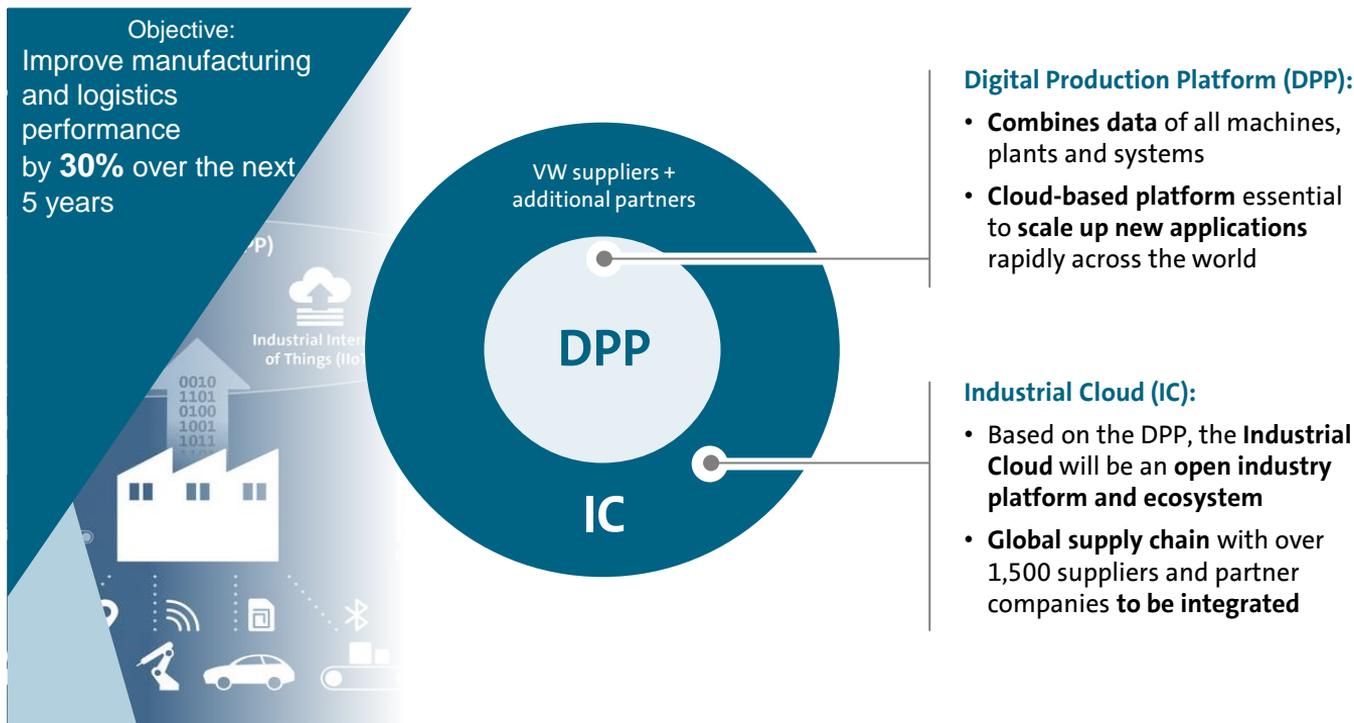
Use Cases

140+ Use Cases identified group-wide

15 Use Cases started

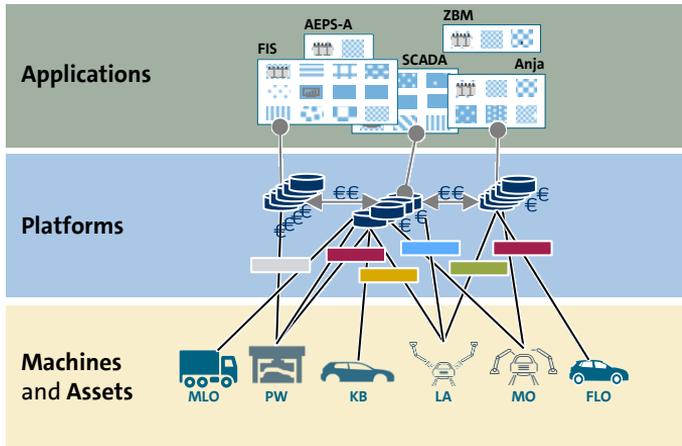
Volkswagen Industrial Cloud

Digital transformation of production and logistics



Digitalization Roadmap Production & Logistics enable significant sustainable savings and fulfill the goals of the strategy

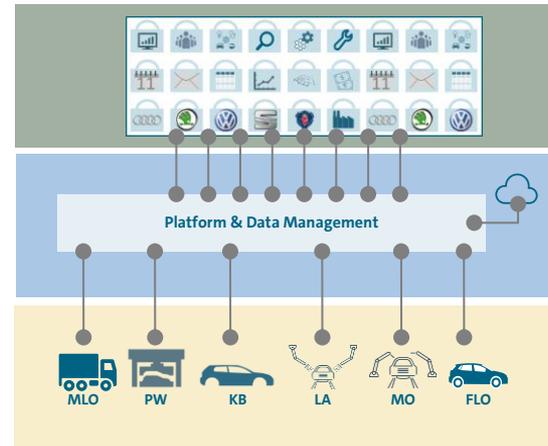
As-Is: fragmented IT/OT landscape



 Provider specific platforms, e.g. ABBility, Mindsphere, etc.

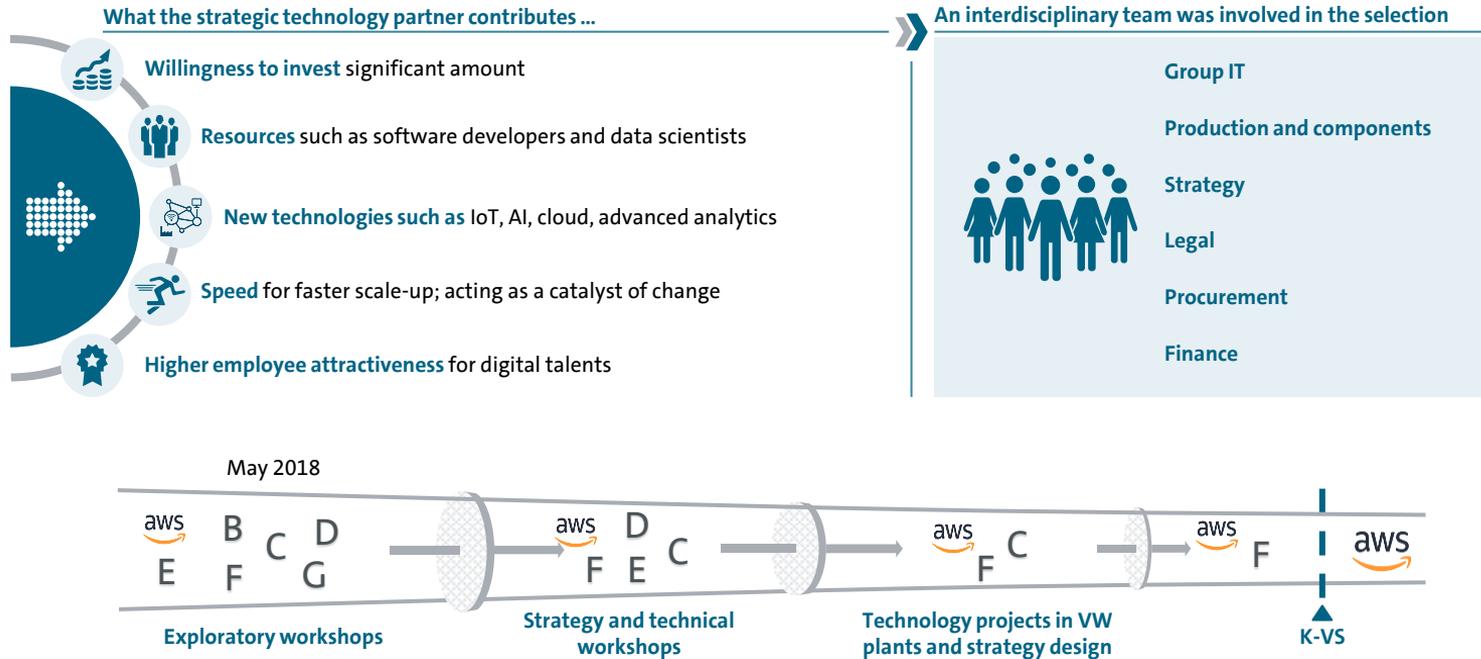
Complexity 	Development-effort 	Personnel costs 
Consolidation 	Asset flexibility 	Stability Production 

Goal: integrated platform architecture

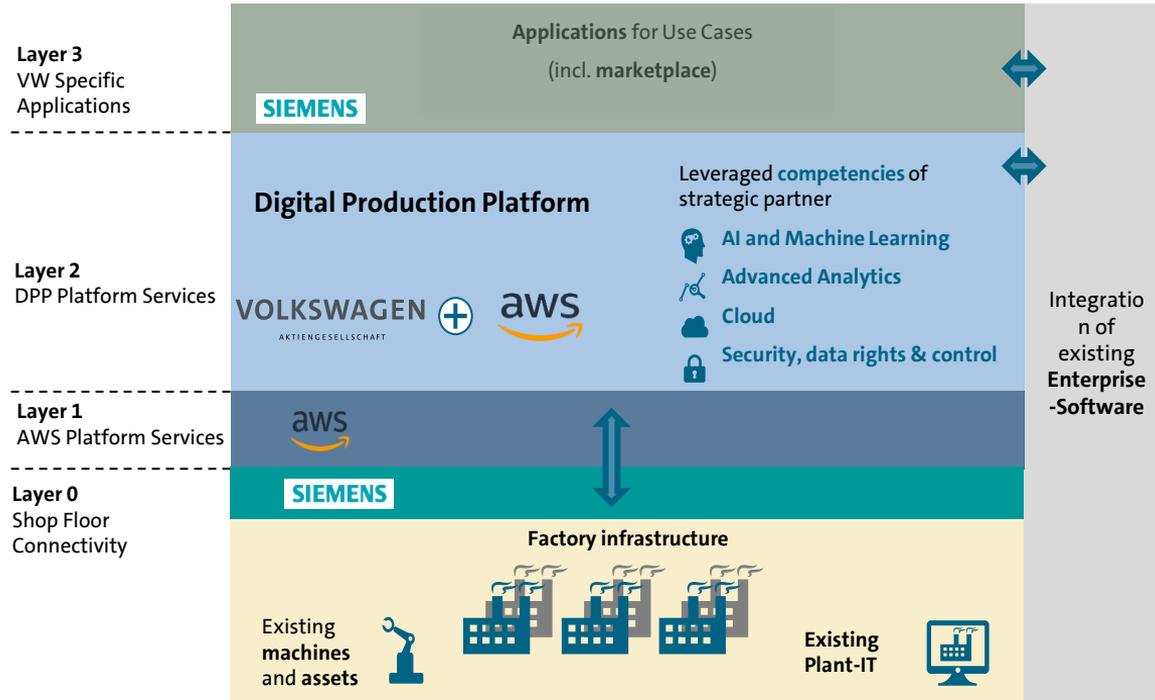


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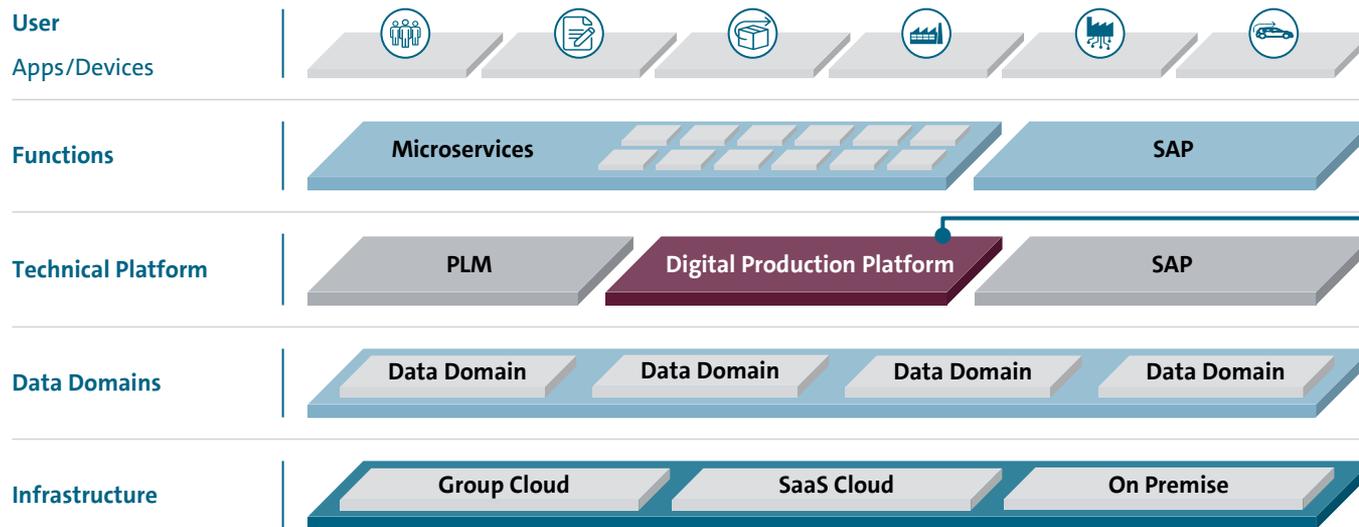
Long-term strategic partnership with AWS



High-Level partner key contributions to the DPP



A uniform architecture for all brands and plants is needed



Partnerschaft mit AWS

Strategic Partner needed

- Scalability
- Sustainable technology standards
- Implementation speed
- Flexibility
- Culture

Introducing AWS Outpost



AWS-designed **Nitro infrastructure** for the same security and performance

Automatically monitored and updated as part of AWS regions

Single point of service and support

Build once, deploy **anywhere**.

AWS Outpost for Manufacturing Automation

- Outposts runs AWS infrastructure , APIs and services on-premises for easy integration with AWS cloud deployment
- Choice of EC2 instances and local storage for fast computations and real time response
- As-a-service model eliminates the overhead of managing small footprint datacenters
- Connect to regional AWS services such as AWS S3, AWS DynamoDB for data aggregation across environments
- Use AWS CloudFormation and AWS CodeDeploy in AWS cloud to build once and deploy to all sites



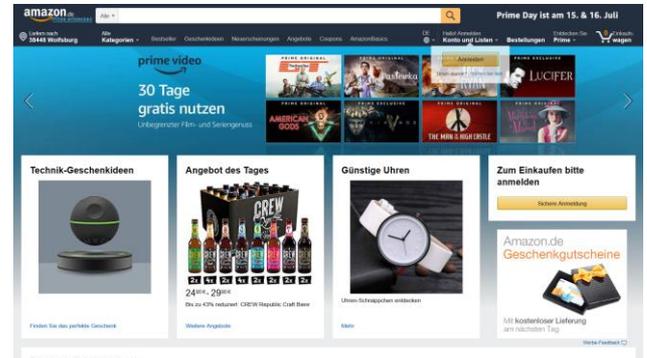
AWS and Volkswagen contribute key expertise and resources in a long-term partnership



> 80 years



> 20 years



Source: <https://www.volkswagenag.com/de/group/history/chronicle/1945-1949.html>
<https://www.volkswagenag.com/de/news/stories/2018/11/the-beetle-history-of-a-cult-car.html>
<https://www.newfangled.com/permanent-transition/> <https://www.amazon.de/>

The implementation of the DPP and the Industrial Cloud is based on a common vision and a close collaboration between all involved parties

„Together with
AWS we will
develop the
leading Industrial
IoT Platform for
the automotive
industry“



Joint decisions as strategic partners



Joint team



Joint innovation approach and leadership principles



Agile working methods

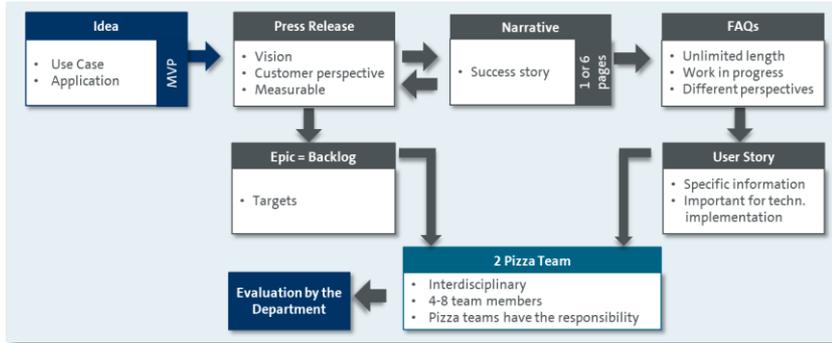


Transparent and structured processes



Joint workshops for knowledge- and team building

The cooperation between VW and AWS is based on Working Backwards jointly agreed tenets



Unique Requirements + **Amazon Culture of Innovation** + **VW Technical Knowledge** =

Delivery Tenets

These are our delivery tenets, unless you know better

Culture	Technology
1. We will always make decisions jointly as strategic partners	1. We will use a microservices architecture for all use cases
2. We will prioritize activities that involve working with end users	2. We will address simple/re-usable use cases and factories first and increase complexity over time
3. All DPP stakeholder will use AWS innovation mechanisms and Leadership Principles	3. All DPP stakeholders will use agile and iteratively release new features



Thank You !