



Preparing operations and supply chain for the restart

Deloitte Point of View

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Deloitte Presenters

Short bios of today's presenters



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Tobias Exler is a Director with Deloitte Consulting and leads the Manufacturing Strategy and Smart Operations practice. He has more than 14 years of consulting experience in manufacturing, logistics and supply chain in different industries with a focus on the automotive industry.



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Stefan Klang is a Senior Manager with Deloitte Consulting and advises companies from the automotive sector in the areas of production and supply chain, with focus on manufacturing strategy, operational excellence and digitalization. He leads Deloitte's service offering on launch and ramp-up management.



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Harald Proff has over 20 years of experience in industry and consulting and is the responsible lead partner for Operations in Germany including manufacturing, product development, supply chain management and logistics.

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Selected methods and tools



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Discussion and Q&A

Selected typical challenges

A complete shutdown of the entire operations and supply chain creates a completely new situation, with limited applicability of lessons learned from past ramp-ups

PROGRAM MANAGEMENT

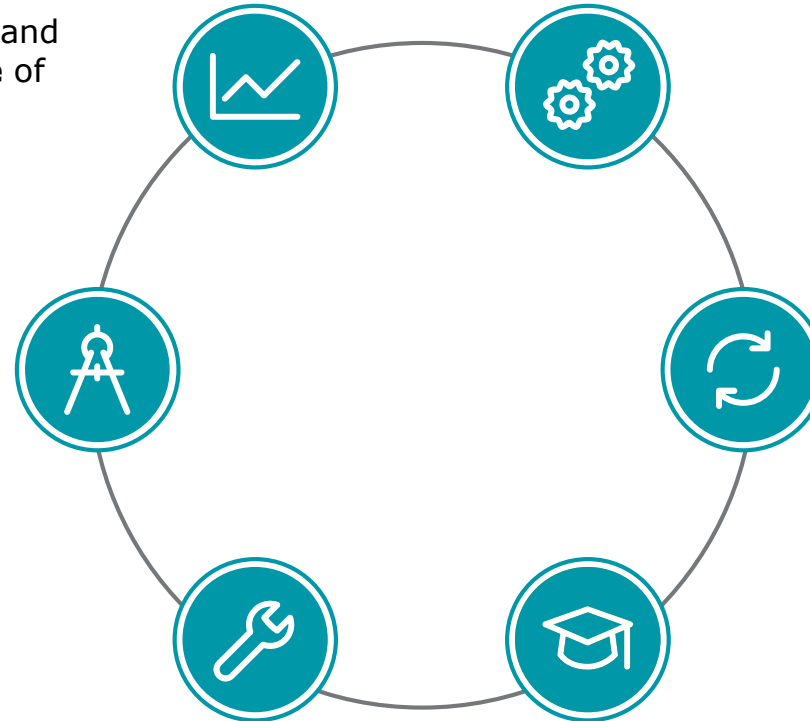
Existing **program management** processes and tools **often highly manual** and **not capable** of managing workload during restart/ramp-up

QUALITY MANAGEMENT

Inefficient problem management process not enabling for fast failure elimination

ASSETS AND EQUIPMENT

Equipment upgrades or **maintenance** activities **not pulled forward**, leading to additional (planned) shutdowns



PRODUCTION

Production **processes** often **not flexible or agile enough** for restart/ramp-up situations

SUPPLY CHAIN

Limited visibility into **sub-supplier status** and **readiness** (capacity, processes & quality)

WORKFORCE

Shutdown time often **not adequately** used for employee **qualification**. Lack of procedures to ensure **workforce health**; missing planning capabilities for restart and workforce availability

Success factors from recent China production restarts

Looking at the recent production restarts in China, and comparing it with the situation in Europe, a successful restart of the entire supply chain will require behavioral changes

SUPPLY CHAIN



- **Actively support suppliers** (e.g. adaptation of payment terms, cash support)
- Introduce **systematic supplier inventory** monitoring to ensure supply

PRODUCTION



- Use **existing inventories** to get production up and running
- Start with **lower production capacity** to have supply chain fill up first

CUSTOMERS



- Supply market with **highly demanded variants first** (e.g. white colored vehicles)

WORKFORCE



- Establish company-wide **daily employee health checks**
- Ensure **minimum distance** between employees on **production line** between










Key activities in the integrated restart/ramp-up program plan

From our point of view, critical factors for a successful restart/ramp-up are lean execution and fast integration

Activities	
Planning & Steering	Program planning for production and supply chain restart
	Daily production and supply chain control
Supplier Network	Supplier risk management
	Supplier stabilization support
Production & Logistics	Production ramp-up and stabilization
	Workforce planning, qualification and preparation
Quality Management	Quality validation
	Problem management process (Accelerated)
Program Management	Ramp-up Management Execution
	Performance Tracking

Important considerations

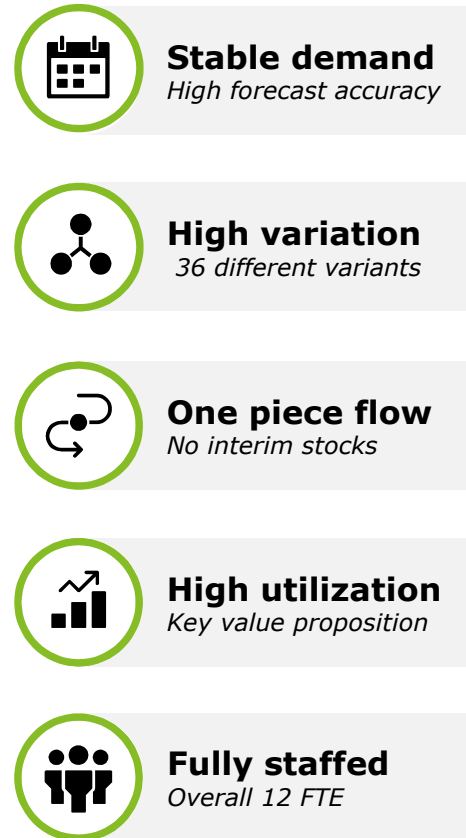
Prior and during the restart or ramp-up of the operations and supply chain, selected key areas need to be carefully managed to ensure a sustainable “going back to normal”

	Planning & Steering	Supplier Network	Production & Logistics	Quality Management	Program Management
BEFORE	<ul style="list-style-type: none"> Closely align production program considering status of own sub-suppliers, OEM production restart (and demand) and own production status Simulate capacity and demand to understand shortages, assess risk of unplanned events 	<ul style="list-style-type: none"> Assess which sub-suppliers are impacted the most from current stoppages (e.g. due to geographies) Illuminate extended supply network via visibility to key Tier 2 or 3 suppliers and beyond 	<ul style="list-style-type: none"> Conduct dry-run production under “normal” production conditions prior to actual production start Perform equipment maintenance / upgrades to avoid further shutdowns Execute digital learning factory for employee qualification to prepare for restart/ramp-up 	<ul style="list-style-type: none"> Analyze past quality issues and deploy predictive quality analytics to prevent upcoming failures 	<ul style="list-style-type: none"> Establish cross-functional task force, consisting of procurement, production, logistics and key support functions to manage restart/ramp-up efforts Achieve full working capital transparency and accelerate implementation of improvements to secure cash flow
DURING & AFTER	<ul style="list-style-type: none"> Establish overarching production and supply chain control tower for daily performance tracking 	<ul style="list-style-type: none"> Align ramp-up plan early with OEM, request continuous exchange of information with OEM Align closely with key suppliers to understand flexibility they have 	<ul style="list-style-type: none"> Process confirmation to drive process adherence Perform production stress-tests 	<ul style="list-style-type: none"> Execute accelerated problem management process 	<ul style="list-style-type: none"> Cross-functional steering of restart/ramp-up efforts Ensure workforce health (e.g. health checks at the entrance of each building) Continuously track workforce availability
IMPACT	 Material efficiency  Asset efficiency  Operational efficiency	 Material efficiency	 Asset efficiency  Operational efficiency	 Increased quality	 Overhead efficiency  Cash flow

Crisis impact on operations and supply chain (and simulating the restart)

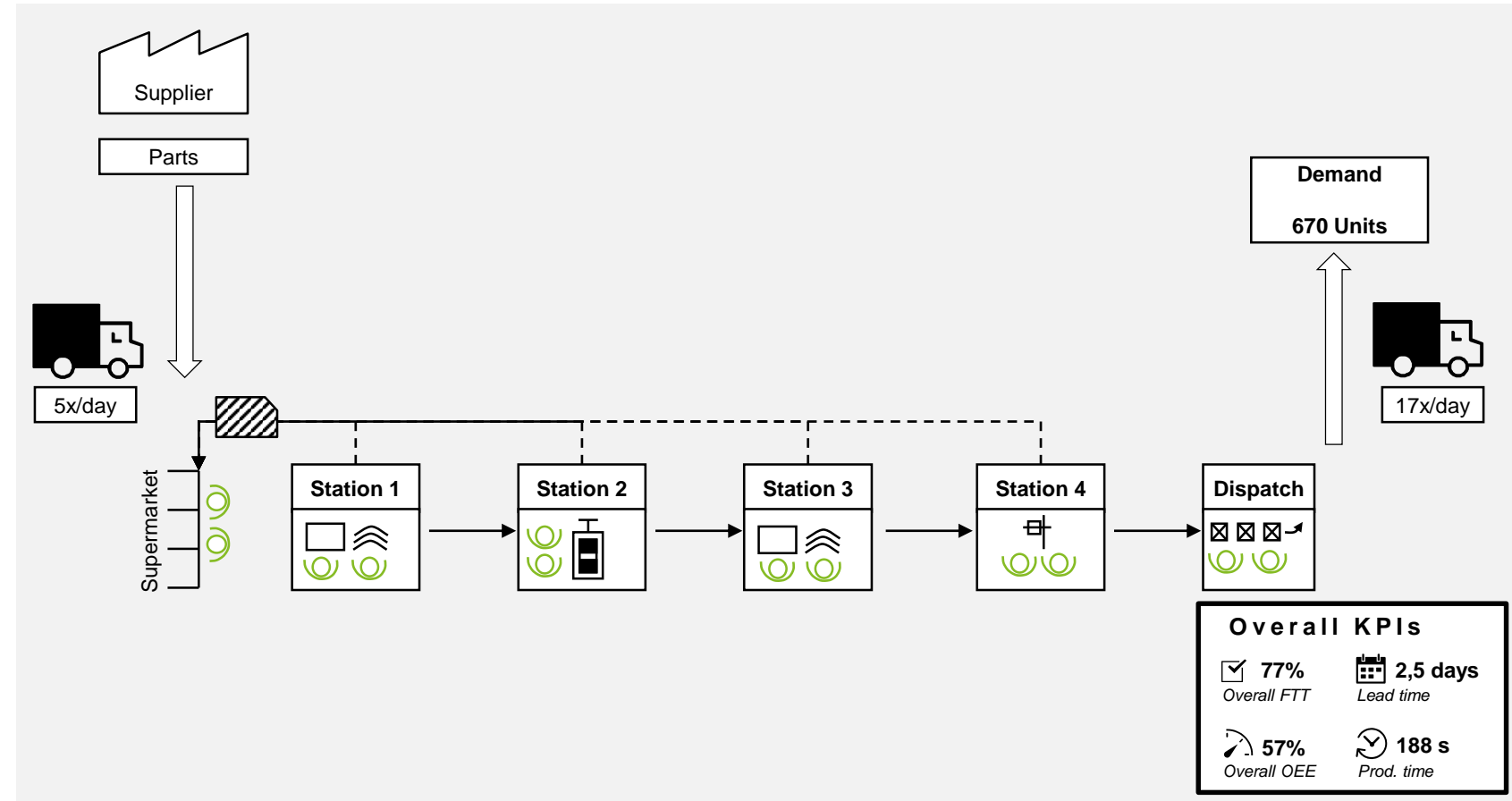
Operations and supply chain are severely impacted by the crisis. Using the manufacturing line in the Deloitte Digital Factory, we can simulate impact and ramp-up scenarios

Situation before crisis



Value stream (simulation)

ILLUSTRATIVE

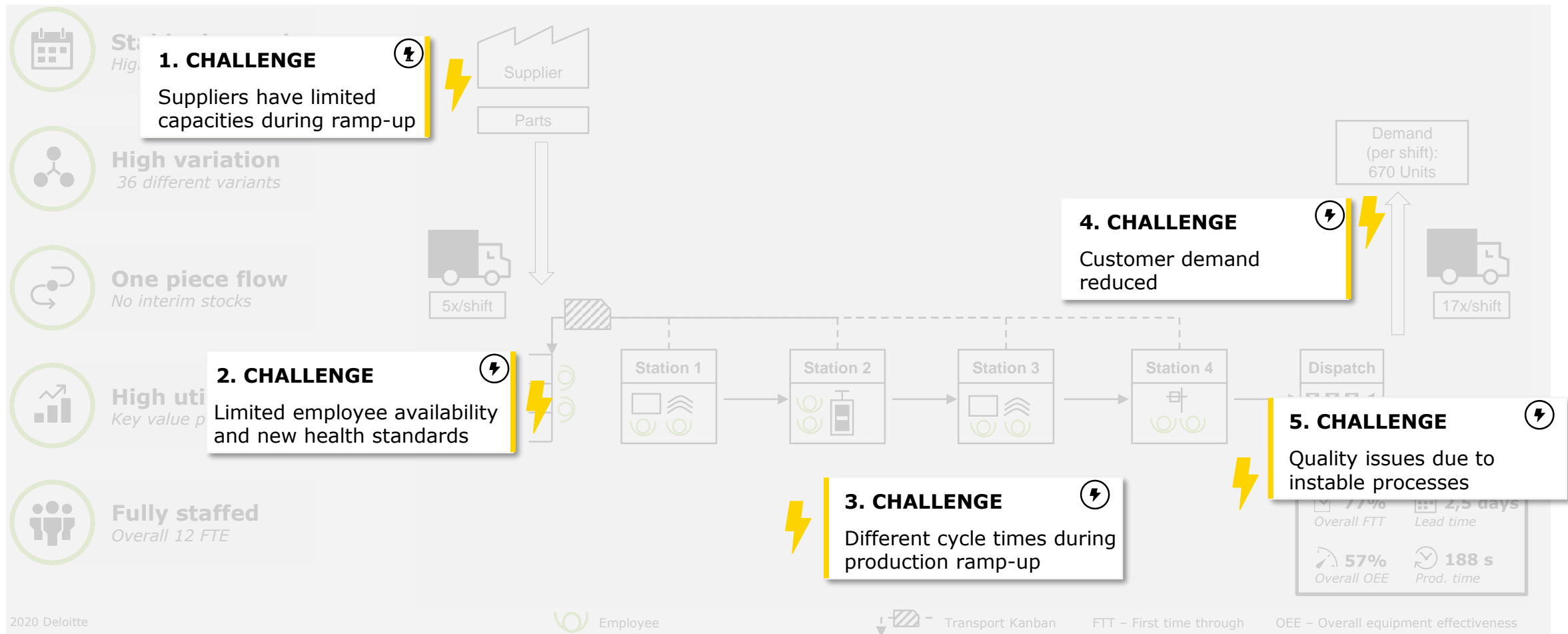


Challenges in the operations and supply chain due to the current crisis

The crisis situation creates various challenges across the entire value chain of our manufacturing line – the restart and ramp-up needs to consider adjustments

Situation during crisis Value stream (simulation)

ILLUSTRATIVE



The background image shows a bright, modern manufacturing or research environment. It features large windows on the right side, providing natural light. In the foreground, there's a wooden workbench with a robotic arm (yellow and blue) mounted on it. To the left, a large monitor displays a technical image. On the workbench, there are several blue and yellow storage bins, a small white machine, and some papers. In the background, a whiteboard with the 'Deloitte Digital' logo and a circular diagram is visible. Another monitor is mounted on a stand further back. The overall atmosphere is clean and high-tech.

Ramp-up Round 1

Three times higher cycle time due to reduced number of employees on the line

Distance between employees on the line and **daily health checks**






Daily delivery of **supplier parts** and in **higher** lot sizes

Reduced number of produced **variants**

Simulating the restart and ramp-up (ramp-up round 1)

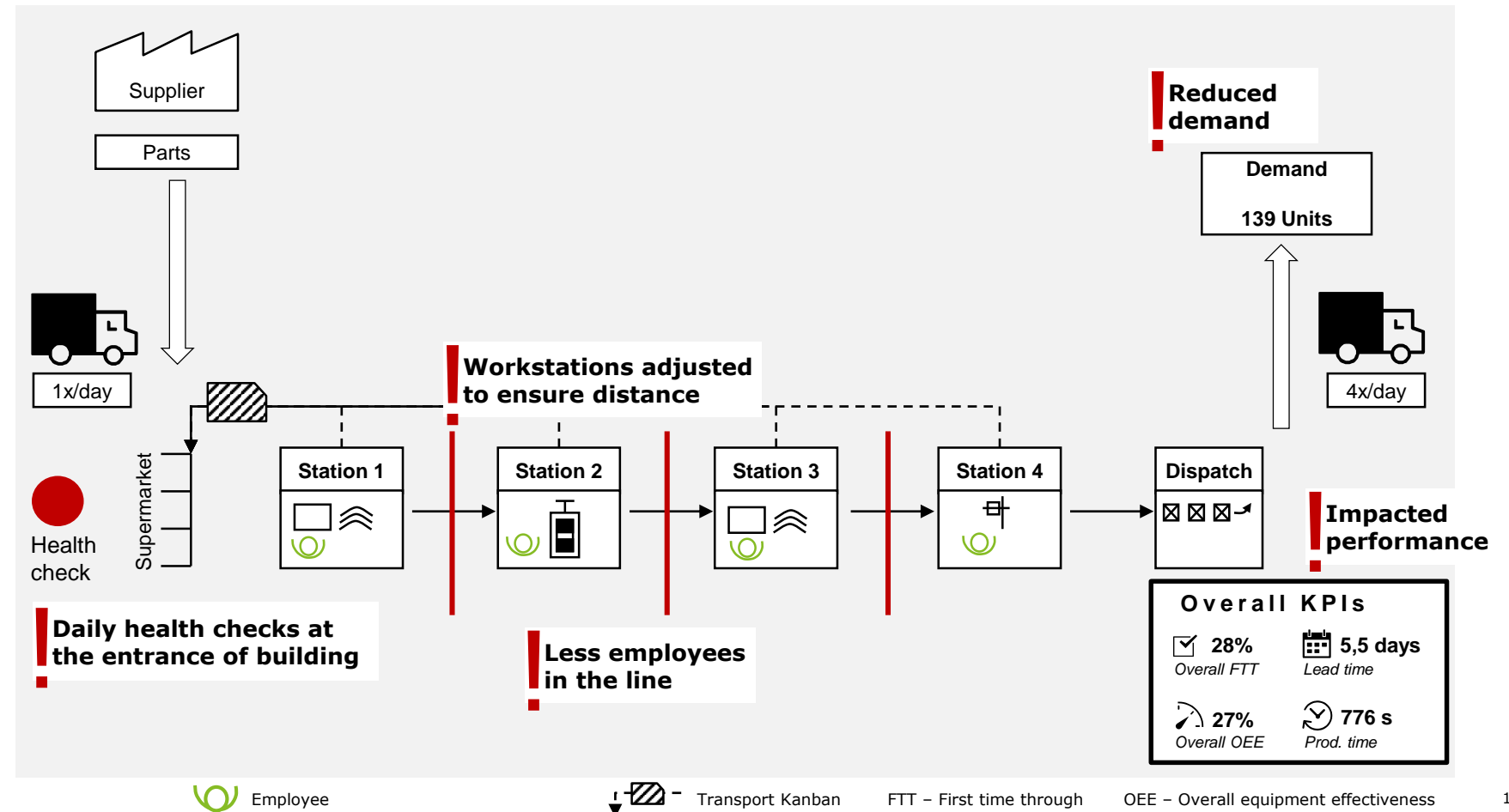
We made crucial adjustments to the value stream due to health requirements, while accounting for the complexity of the ramp-up – performance indicators decrease

Ramp-up adjustments

-  **Stable demand**
Alignment with supplier
-  **Low variation**
4 different variants
-  **Pull flow**
Interim stocks & Kanban material flow
-  **Low utilization**
Reduced # of people
-  **Reduced workforce**
Overall 4 FTE

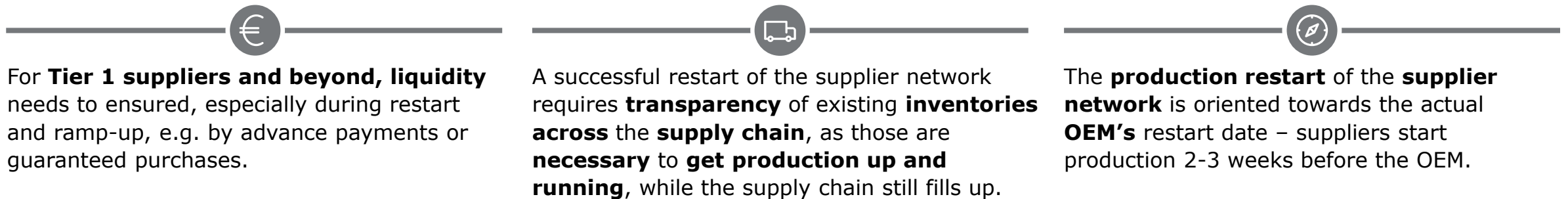
Value stream (simulation)

ILLUSTRATIVE



Prior and during restart, the OEM acts as central coordinator. Ideally, suppliers already start production 2-3 weeks before the OEM in order to refill the supply chain again

**Production
restart
compared
to OEM**
[in weeks]



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Success factors and important considerations



Selected methods and tools



How we can support



Discussion and Q&A

Ramp-up Management Execution

An overarching ramp-up management office steers all activities during the preparation and execution of the restart/ramp-up

Activities	
Planning & Steering	Program planning for production and supply chain restart
	Daily production and supply chain control
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Preparing and managing the restart/ramp-up

A multitude of topics and activities before and during the restart/ramp-up require full visibility on status and effective management

Dimension

Topics (Selection)

Success Factors



Processes

- **Risk areas** in **production** requiring adjustments for ramp-up (e.g. high rework effort in past)
- Staggering of **production speed** during restart/ramp-up
- **Problem management process** speed and adjustments



People

- **Availability scenarios** for workforce (ability to go to work, ...)
- **Health status** and **skill level** of employees
- **Necessary qualification measures** based on past stability or quality-related issues in production (e.g. using DPU reports)



Parts (Suppliers)

- Planned **production restart** of **sub-suppliers** (in scenarios)
- Supplier **inventory levels**, lead times & quality (in scenarios)
- **Transportation providers** utilization and flexibility
- **Call-off process** from OEM (standard vs. pre-notice to suppliers)



Plant

- **Asset/equipment upgrades** status and completion date
- **Asset stress test**, spare parts availability, ...



Simulations and dry-run builds under “normal” production conditions prior to restart to align interfaces.

Additional remote qualification sprints with direct and indirect employees to prepare for restart/ramp-up phase.

Pre-align restart and ramp-up scenarios with sub-suppliers upfront and regularly.

Pull forward equipment maintenance and upgrades to avoid further shutdowns.

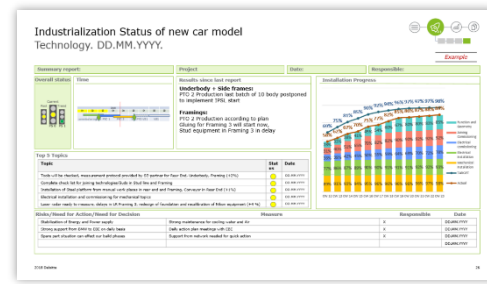
Ramp-up Management Execution

A set of efficient operating mechanisms and tools enable for transparency during planning and execution of the restart/ramp-up

Operating Mechanisms and Tools



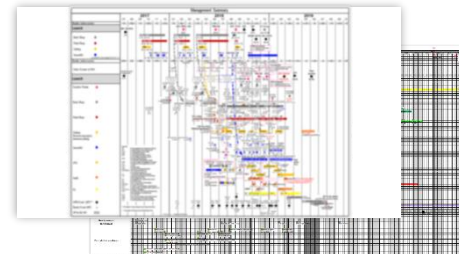
4P status monitoring



Stabilization and quality status



Ramp-up KPI cockpit



Restart/ramp-up schedules

Description

4P status monitoring

The 4P status (Process, People, Parts, Plant) monitoring tool steers the readiness for the restart.

Stabilization and quality status

The stabilization and quality status tool provides key performance metric related to production output.

Ramp-up KPI cockpit

The ramp-up KPI cockpit is a top management dashboard providing daily updates on critical key performance indicators (KPIs).

Restart/ramp-up schedules

Integrated schedules outlining detailed preparation activities as well as key quality gates during the ramp-up.

Supplier Stabilization and Risk Management

Full transparency on risks related to sub-suppliers is the basis for effective supplier stabilization during restart/ramp-up

	Activities	Description
Planning & Steering	Program planning for production and supply chain restart Daily production and supply chain control	<ul style="list-style-type: none">• Define production program• Control ramp-up of production and supply chain
Supplier Network	Supplier risk management Supplier stabilization support	<ul style="list-style-type: none">• Illuminate supplier network and coordinate restart efforts• Support supplier stabilization
Production & Logistics	Production ramp-up and stabilization Workforce planning, qualification and preparation	<ul style="list-style-type: none">• Ramp-up production & logistics• Plan workforce for restart/ramp-up and prepare employees
Quality Management	Quality validation Problem management process (Accelerated)	<ul style="list-style-type: none">• Ensure quality adherence and fast elimination of Q-problems
Program Management	Ramp-up Management Execution Performance Tracking	<ul style="list-style-type: none">• Cross-functional steering of all restart/ramp-up efforts• Company-wide monitoring of employee health situation

Supplier Risk Management

Ensuring material supply is critical to be able to react flexible in case of uprising demand. Collaboration and partnership with sub-suppliers is essential

Goals

Ensuring the **supply** of parts and components from **sub-suppliers** to plants

Typical tools used

- Top 6 Management Report
- Backlog recovery plan
- Mitigating activity plan
- Supply chain mapping / material flow analysis
- Fishbone / Ishikawa diagram
- Bottleneck control
- Capacity planning
- Raw Material Monitor

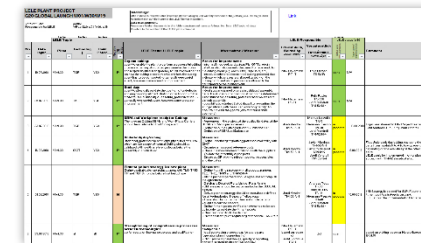


Key activities

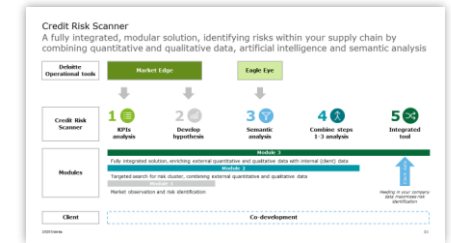
- **Analysis and evaluation** of the **security of supply** and other risks, taking into account functional, operational & other risks
- **Development and implementation of mitigation measures** taking into account technical and time restrictions
- Direct **contact with the relevant stakeholders** (e.g. authorities, supplier representatives, OEMs, owners)



Supplier status report



Risk tracking tool



Supplier Risk Monitor

Production ramp-up and stabilization

Prior to the production ramp-up

Activities	
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Production ramp-up and stabilization

In order to ensure that each function is ready for the restart and ramp-up, a 4-step approach is taken upfront to validate readiness

4-step approach

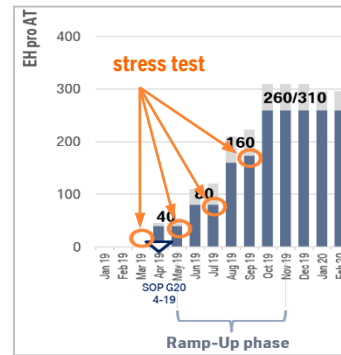
1. Conduct 4P-readiness assessment

Theoretical assessment for volume step assurance

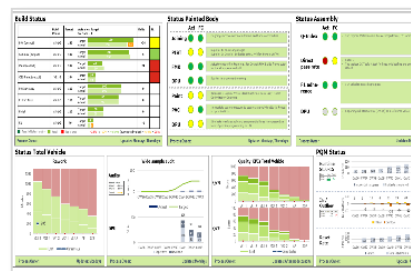
PARTS	Build	Reference	Responsible	Status
1. Are regular parts with sufficient quality?				
2. Are regular parts with required quantity?				
3. Are regular parts correct?				
4. Is the Cubit 1000000 working?				

PROCESS	Build	Reference	Responsible	Status
1. Which are the critical processes for Ramp-up?				
2. Is the production sequence Ramp-up defined?				
3. Are all processes defined?				
4. Are all processes working?				
5. Are resources defined?				
6. Are resources working?				
7. Are roles and responsibilities defined?				
8. Are process resources defined?				
9. Are process resources working?				
10. Are process resources in place and working?				
11. Are the right materials resources in place and working?				
12. Are the right materials resources in place and working?				
13. Are the right materials resources in place and working?				
14. Are the right materials resources in place and working?				
15. Are the right materials resources in place and working?				
16. Are the right materials resources in place and working?				
17. Are the right materials resources in place and working?				
18. Are the right materials resources in place and working?				
19. Are the right materials resources in place and working?				
20. Are the right materials resources in place and working?				

2. Run stress test



3. Confirm readiness for production



4. Define counter measures

Define counter measures form. The form includes a table for counter measures, with columns for the measure, the responsible person, and the status. The status is marked with green circles and arrows, indicating that all counter measures are defined and working.

Measure	Responsible	Status
1. Define immediate counter measures in case targets were not met in order to assure volume can be achieved		Green
2. Define charters with specific tasks for each counter measure, including timeline and responsibilities		Green

Description

1. Conduct 4P-readiness assessment

- Questionnaire with individual adaptations for each area
- Chapters assessed by questionnaire include 4P dimensions (Process, People, Parts, Plant)

2. Run stress test

- Stress tests are conducted in each production area and also synchronized across all areas
- Production volume during stress test is minimum on the level of next planned production volume step

3. Confirm readiness for production

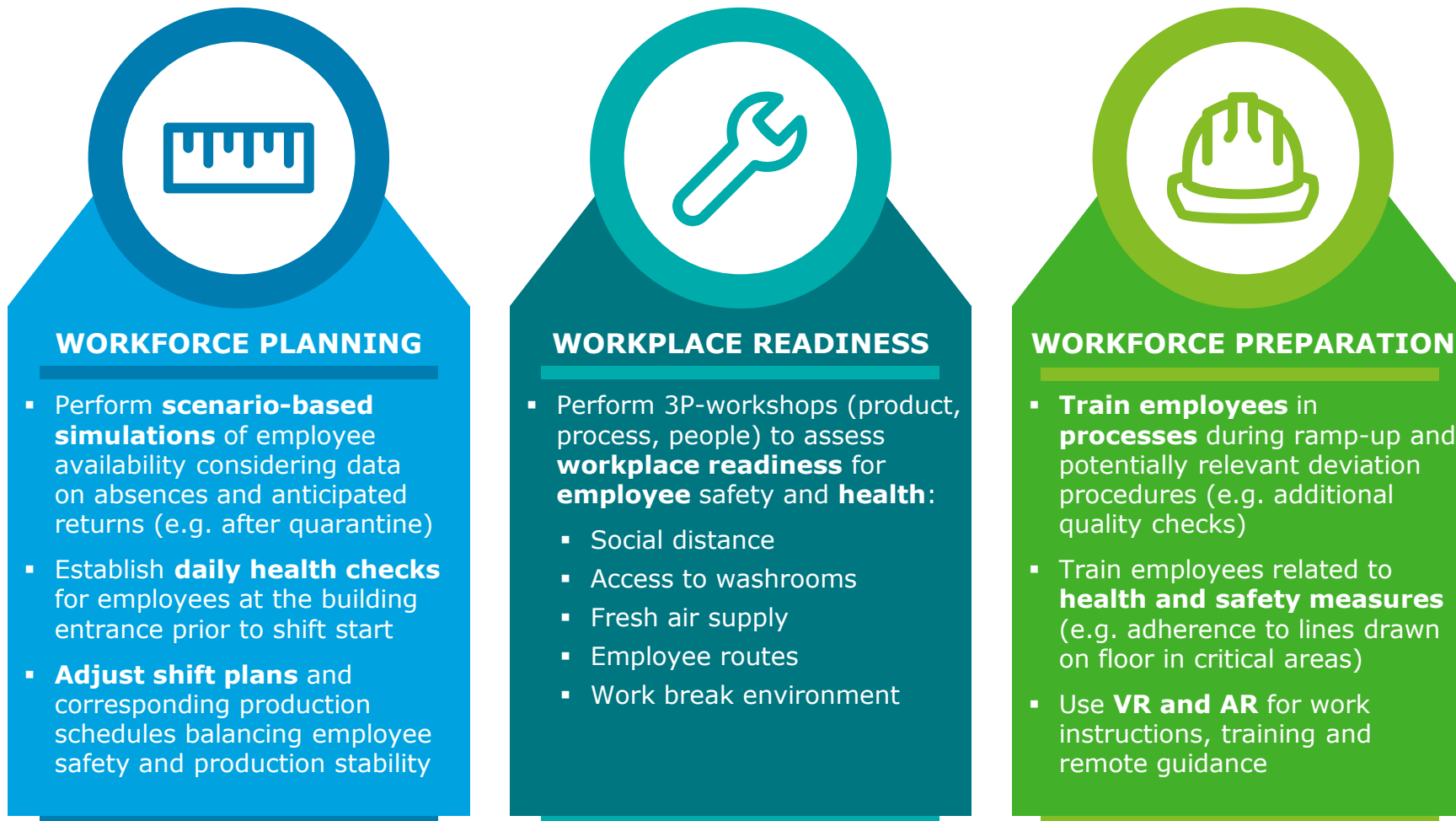
- Proof capability for production re-start based on previously assessed aspects and requirements
- Confirmation that quality and performance targets were met or even overachieved during the stress test

4. Define counter measures

- Define immediate counter measures in case targets were not met in order to assure volume can be achieved
- Define charters with specific tasks for each counter measure, including timeline and responsibilities

Workforce planning, qualification and preparation

Keeping employees healthy is crucial and requires proper planning and preparation to successfully be able to restart production



Summary of key take-aways

Before planning and execution start of the restart and subsequent ramp-up, a few key points should be kept in mind

PROCESSES

A **cross-functional steering** of all restart and ramp-up efforts should be established, while a **company-wide monitoring** of **employee health** provides the basis for workforce planning and timely adjustments as needed.

PARTS (Suppliers)

Full supplier visibility as a starting point, to manage status and risks in the supply chain, and to align restart and ramp-up plans between own plant and suppliers.
Stabilization support for **key suppliers** during ramp-up.

PEOPLE

Adjusted workplace layouts provide the necessary employee safety during production, with **trainings prior** to **production start** to prepare employees for adjusted processes and safety measures.

PLANT

Pull forward equipment updates during shutdown times, to ensure readiness for the restart and ramp-up, while also avoiding additional shutdown during vacation periods. Set up **employee health monitoring infrastructure**.

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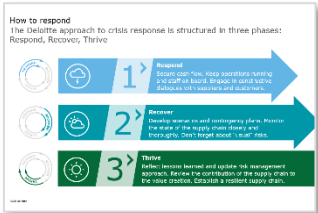
How we can support with our proven approaches (*selection*)

Proven approaches incl. using a remote working model in order to manage the restart or ramp-up of the operations and supply chain

A. RESTART READINESS CHECK

Activities:
SC quick assessment to identify risks and define initiatives to synchronize restart/ramp-up between plants and suppliers

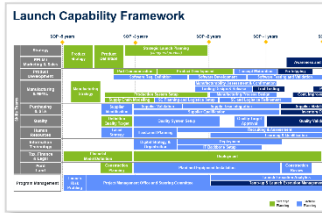
Duration:
4-6 weeks



B. RAMP-UP TASK FORCE

Activities:
Set up and deploy cross-functional task force to manage restart efforts across involved departments

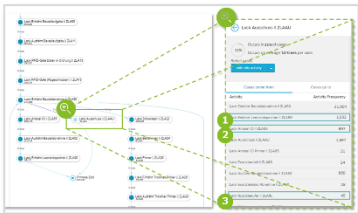
Duration:
6-8 weeks



C. 360° WORKING CAPITAL MONITOR

Activities:
Deploy AI-enabled 360° working capital monitor for inventory transparency and potential optimizations

Duration:
4 weeks



D. SUPPLIER TIGER TEAMS

Activities:
Deploy and steer tiger teams for priority suppliers to assess status/risks and support restart/ramp-up

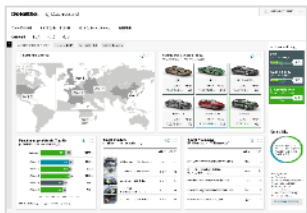
Duration:
6-8 weeks



E. PREDICTIVE QUALITY

Activities:
Analyze quality issues and deploy predictive quality analytics to prevent failures during restart/ramp-up

Duration:
8 weeks



F. DIGITAL LEARNING FACTORY

Activities:
Develop concept and deploy digital learning factory pilot to train employees for restart/ramp-up

Duration:
8-12 weeks



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How we can support



Discussion and Q&A

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