

COVID-19 Supply Chain Navigating Your Business Through Turbulent Times

March 2020



strategy&
Part of the PwC network



COVID-19 has been affecting businesses. Unfortunately, what we see today might only the beginning

Coronavirus Could Cost the Global Economy \$2.7 Trillion
Bloomberg, 06 March 2020

Deutsche Geschäfte verlieren jeden Tag
1,15 Milliarden Euro
FAZ, 16 March 2020

Die Börsen sind in Panik. Minus
30 Prozent in zwei Wochen –
das gab es noch nie.

FAZ, 16 March 2020

VW stellt Produktion ab
Samstag weitgehend ein
Handelsblatt, 17 March 2020

**Dow plunges 3000 points as Fed
intervention does little to subdue
Wall Street's distress**
The Washington Post, 16 March 2020

**Deutschland im
Shutdown-Modus**

Handelsblatt, 16 March 2020

**Corona zeigt: In der Autoindustrie
gibt es immer noch zu enge
Verflechtungen**

Handelsblatt, 9 March 2020

**Coronavirus Is
Different. It's
Rapidly Hitting
Supply and Demand.**
The Wall Street Journal, 01 March 2020

Companies are facing external and internal challenges - both require reactive or preventive actions

Decreasing / Changing Demand

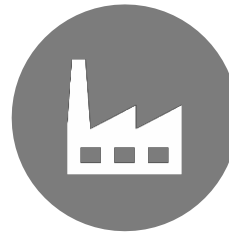
- Reduced sales in e.g. highly affected areas such as China, South Korea, Italy, Germany etc.
- Unforeseeable buying behavior driven by news, media and governmental conditions

Supply Disruption

- Supply shortages, interruptions and delays due to closed factories, factories with workforce and or supply challenges, supplier bankruptcies, delayed processing at borders

Economic Uncertainty

- Low investment rates, fear of recession, shortages in lending operations



Production / Internal Supply

- Low forecast / planning accuracy
- Demand for high flexibility based on demand, supply and workforce challenges

Workforce

- Limited workforce availability
- Change in culture e.g. home office, travel restrictions
- Short-time work ("Kurzarbeit")

Financial & Regulatory Issues

- Financial troubles such as low cash flows, outstanding or delayed payments



Reactive actions: Immediate response to current challenges (crisis is already hitting your company)



Predictive actions: Ensure business continuity based on potential future scenarios

There is no time to waste – five mandatory actions to navigate through the current crisis



Quickly establish a task force



Leverage latest tools, technologies and data analytics to create transparency



Establish a short-, mid- and long-term mitigation plan for demand, supply and workforce



Access governmental support and cross industry synergies / partnerships



Prepare for the up-swing – “History shows that SC struggle most with the up-swing”

Order of the day: Ensure business continuity and minimize P&L impact



Crisis reactive approach (Crisis is already hitting your company)

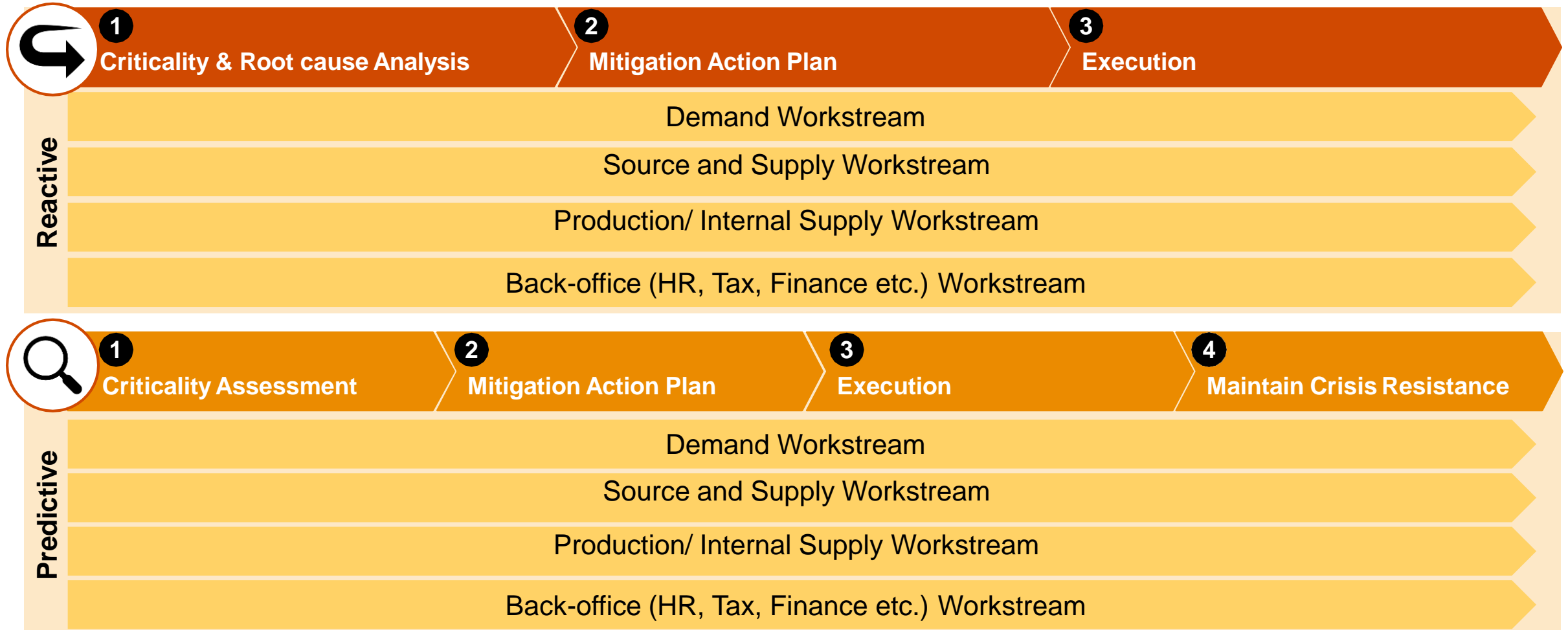
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|--|--------------------------------------|
| ✓ Optimized production output | ✓ Compensation of financial losses |
| ✓ Minimized sales impact | ✓ Governmental support |
| ✓ Improved customer satisfaction | ✓ Agile COVID-19 impact mitigation |
| ✓ Focus on EBIT drivers across the value chain | ✓ Competitive advantage |
| ✓ Elimination of waste | ✓ Improved cash flow |
| ✓ Identify alternative suppliers | ✓ Realize immediate price reductions |



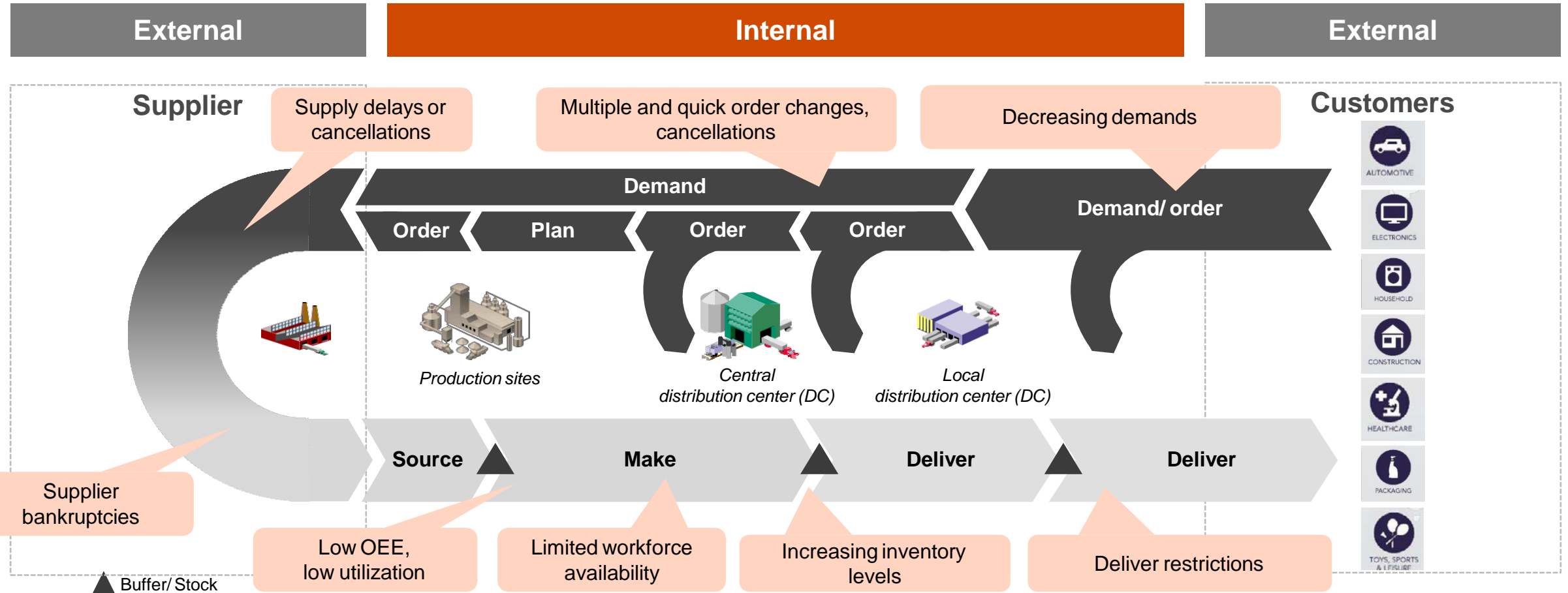
Predictive approach (Proactive crisis prevention)

- | | |
|---|---|
| ✓ Prepare for COVID-19 | ✓ Preemption of financial losses |
| ✓ Reliable crisis warning and monitoring system | ✓ Immediate response to root causes |
| ✓ Understanding of weaknesses | ✓ Higher workforce satisfaction |
| ✓ Preemption of impact | ✓ Competitive advantage |
| ✓ Crisis as opportunity – higher market share | ✓ Understanding of any Governmental support |
| ✓ Search for alternative materials | ✓ Search for alternative suppliers |

Companies need to tackle this challenge through fire fighting the acute challenges as well as planning for future disruptions



For both approaches a holistic assessment of the end-to-end Supply Chain is required



PwC's Supply Chain risk model accesses various leading data sources for a comprehensive end-to-end risk assessment

Non Exhaustive

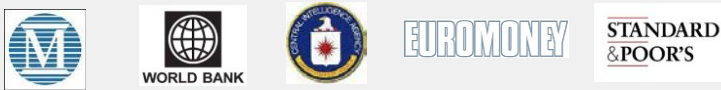
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Global data sources

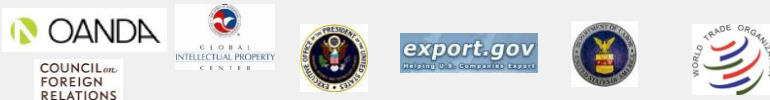
Operational Risk



Financial Risk



Geopolitical Risk



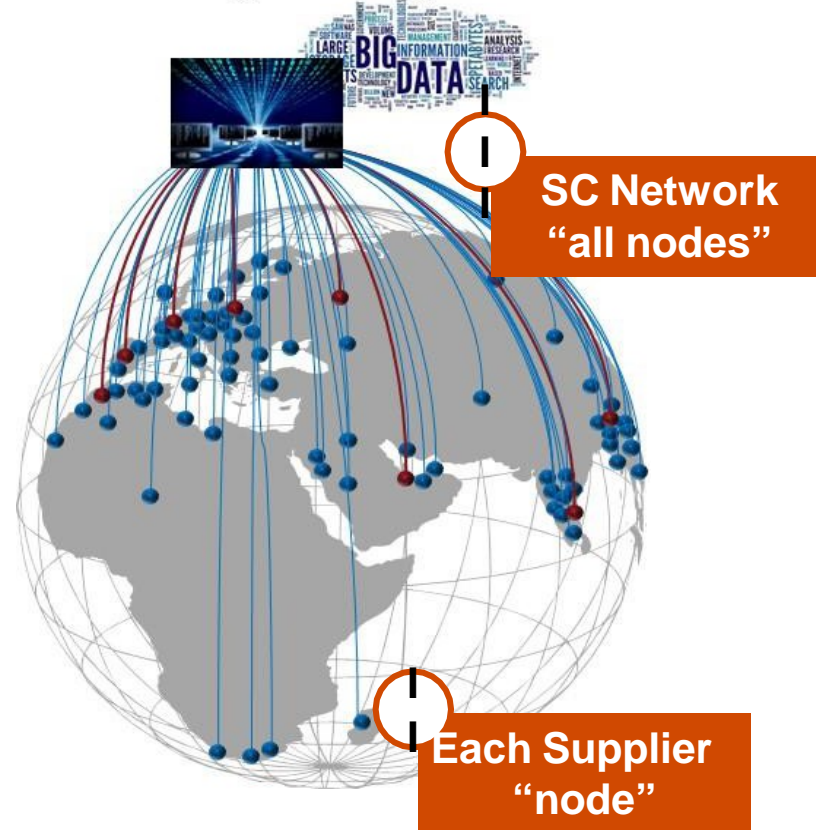
Regulatory Risk



Social Media






Big Data Analytics



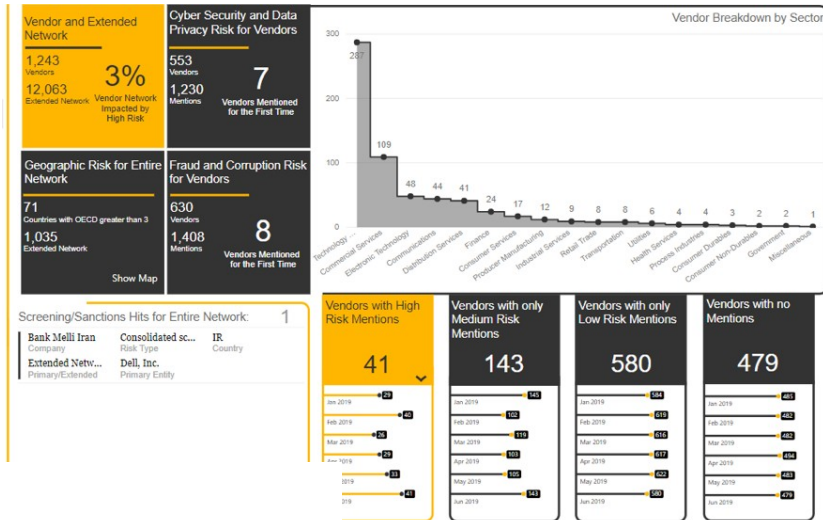
Description

Our PwC 4.0 operations risk model provides an holistic approach:

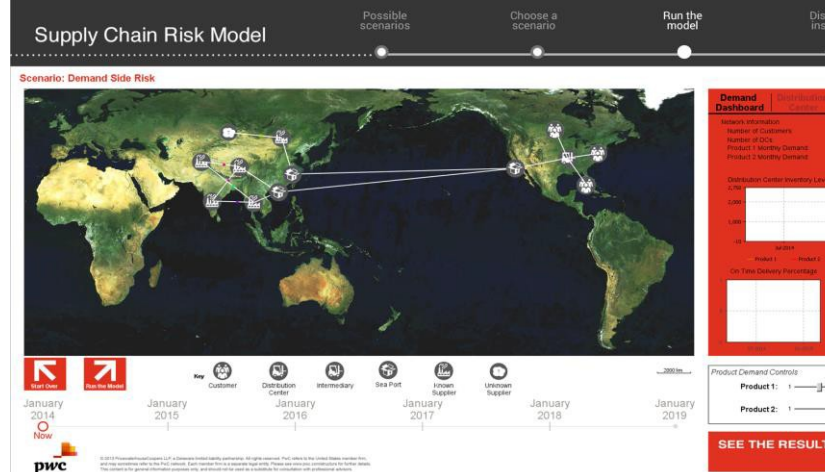
-  We leverage all key data sources for the risk assessment
-  The assessment will be conducted for each individual node (e.g. supplier)
-  As well as for the entire Supply Chain Network

We will leverage our digital tools to create fast insights of individual suppliers and of the entire supply chain network

Supplier Risk Profile (one node)



Supplier Risk Network (all nodes)



Description

- We will analyze **both**, the individual supplier risk as well as the overarching Supply Chain risk
- Leveraging technologies such as AI, semantic analysis, knowledge graphs and machine learning (ML) we will assess connections and risks affecting your business
- This way, not obvious relationships to the firm, e.g. secondary and tertiary relationships, can be uncovered and their criticality assessed



<https://youtu.be/LYkLHJU6i>

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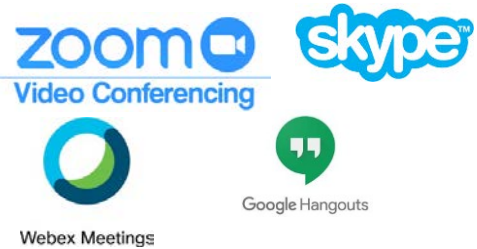


<https://www.youtube.com/watch?v=pPx9zBT7y6U>



Considering the current situation, we are fully prepared to work remotely with you, your suppliers and customers

Online Meetings



Workflow & project mgmt.



Interactive working/ Virtual Whiteboards



Channeling communication



Scrum boards



Enterprise Platforms

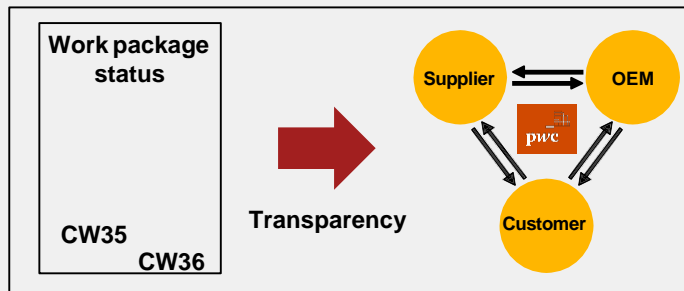


To tackle your acute and future COVID-19 related challenges, we propose the following four step approach

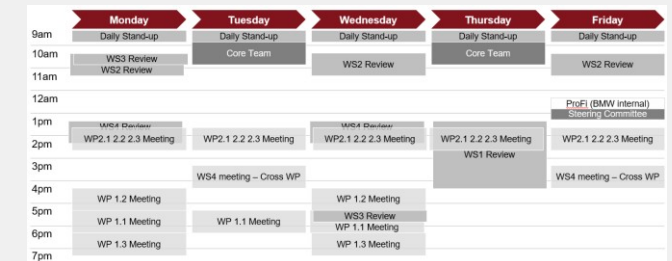


Firstly, we will support you with installing a task force that is equipped with standardized tools and procedures

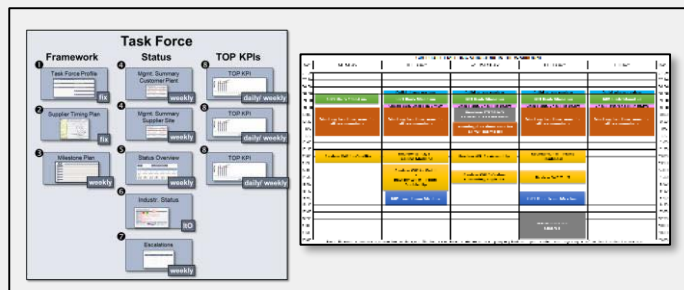
Standardized reporting



Standardized meeting structure



Standardized templates & KPIs



Standardized comms channels



Next we will jointly capture the root causes of your current business disruptions...

Non Exhaustive

Heatmap - root cause assessment of affected products/ families

Products/ Affected areas	Sales			Supply			Production			Finance			Workforce	
	Market A	Market B	Market C	Country A	Country B	Tier >=2 Supplier	Plant A	Plant B	Plant N	EBIT	Cashflow	Tax	Availability	Training
Product/Product Family A	Green	Red	Yellow	Red	Green	Green	Red	Red	Red	Green	Green	Green	Yellow	Red
Product/Product Family B	Green	Red	Green	Red	Green	Yellow	Red	Green	Green	Green	Green	Grey	Yellow	Yellow
Product/Product Family C	Green	Yellow	Red	Grey	Green	Green	Yellow	Red	Red	Yellow	Green	Grey	Yellow	Green
Product/Product Family D	Green	Green	Green	Grey	Green	Green	Yellow	Green	Green	Green	Green	Grey	Yellow	Green
Product/Product Family E	Red	Green	Green	Green	Red	Green	Yellow	Green	Green	Red	Yellow	Grey	Yellow	Green
Product/Product Family F	Grey	Green	Green	Grey	Green	Green	Yellow	Green	Green	Green	Green	Green	Yellow	Red

■ Business as usual
 ■ Medium disruption
 ■ Critical disruption (immediate action required)
 ■ Not relevant/ no concerns

Description

- Root cause analysis will be conducted on two dimensions (product based and area/ function based)
- Each relevant Product/ Product Family as well as function/ area will be individually assessed with regards to business disruption due to COVID-19 crisis
- Result of the root cause assessment will be displayed in a heatmap which provides a good overview of the root cause origin

... and assess the impact of each root cause to the entire business and, if required, react immediately

Illustrative

Root Cause	Impact Scoring				Impact	Description
	Low	Medium	High	Severe		
40% Drop in Sales Market B (APAC) for Product family A					<ul style="list-style-type: none"> 10.000 fewer products and in Plant A & 20.000 fewer products in Plant B to be produced Plant A: Utilization drop of 30% & Plant B Utilization drop of 10% Revenue reduction by 15% 	<ul style="list-style-type: none"> We will analyze and score the impact of each root cause thoroughly For root causes with severe impact we will execute immediately <input type="checkbox"/> we will leapfrog/ accelerate the proposed process to achieve fast results
Supplier A not able to ship part X due to plant shut down					<ul style="list-style-type: none"> Utilization drop of 30% in Plant N for line A Weekly revenue loss of €260k 	
Supplier B not able to ship part X due to plant shut down					<ul style="list-style-type: none"> No supply of machine spare parts from Supplier from Country B (EMEA) Production cost will increase since non ideal machine to be used for production Overtime might be required 	
Due to Corona outbreak utilization drop of 30% in plant					<ul style="list-style-type: none"> Output of Product/ Product family E, F,G reduced by 15% Revenue reduction by 20% Supply shortages in Asia starting next week Risk of losing key customer x to competitors 	
Customer C has cashflow issues and is unable to pay on time					<ul style="list-style-type: none"> Accounts receivable will increase Limited impact on cashflow situation 	
Financial challenges of single source supplier					<ul style="list-style-type: none"> Supplier filed bankruptcy Days of Inventory are 30 days due to reduced sales Existing stock of supplier would provide time to find a replacement <input type="checkbox"/> immediate action required	
Controls at border slow down supply of critical goods					<ul style="list-style-type: none"> Production of part A needs o be delayed by 2 days (immediate actions can be handled by production planner) 	

Through a detailed FMEA, we will assess and evaluate all COVID-1350 related future risks for your business

Illustrative

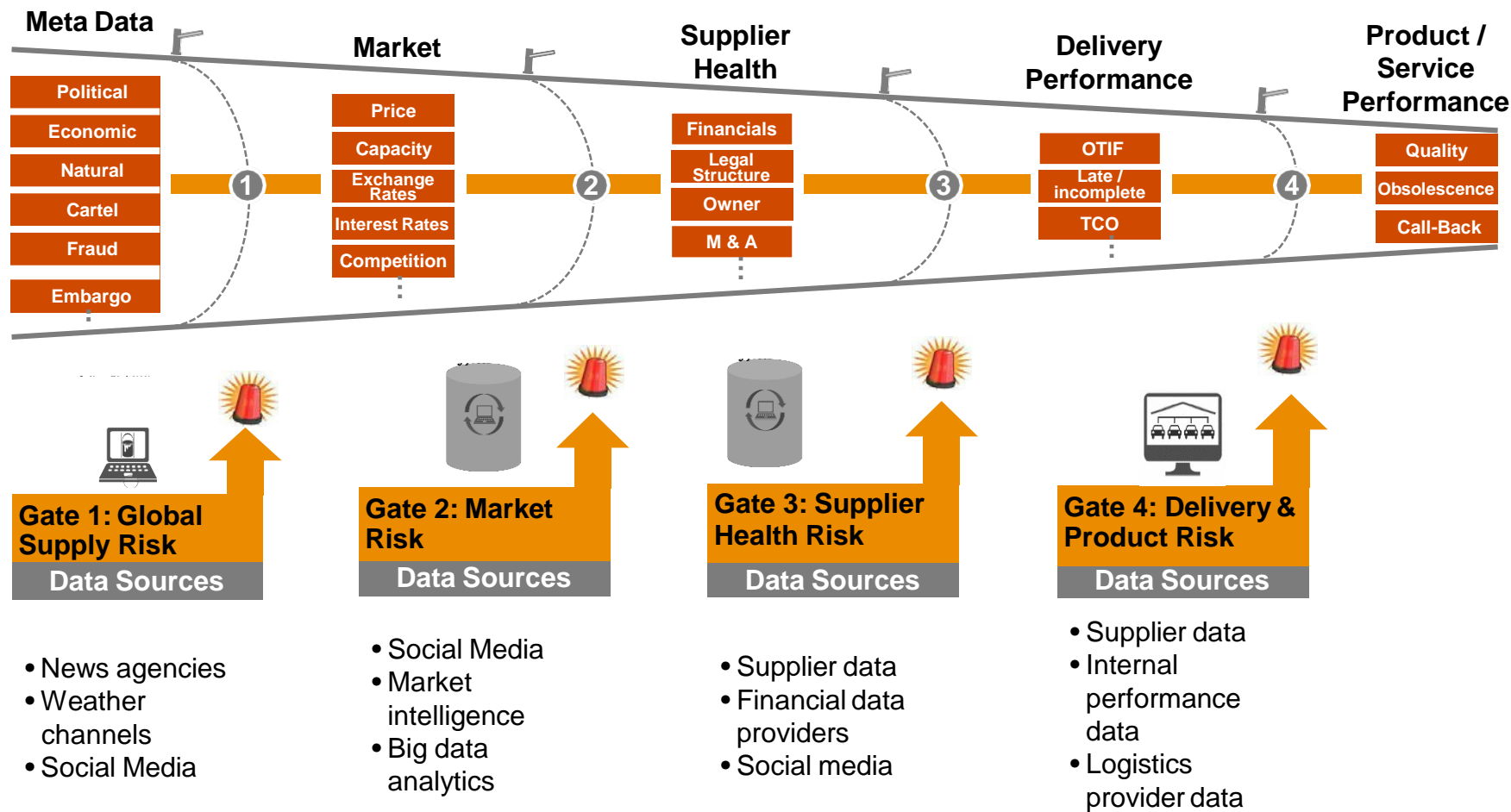
FMEA – criticality assessment of impact in epidemic crisis

Product/ ID	Product family	Workstream	Affected Areas	Crisis Effect/Fail Impact	Severity	Potential Failure Cause and detail of likelihood/ Comment	Preventive Detection Action/ Comment	Detection	RPN
1	A	Sales	Market A (EMEA)	Drop in sales	Revenue drop	3 People illness effects	6 Risk mgmt located in 7	6	108
2	A	Sales	Market A (EMEA)	Stagnation	Effect	SEVERITY of Effect	Ranking		
3	A	Sales	Market A (EMEA)	No sh	Loss of operational capacity	Loss of capabilities to act/react (quant. Thresholds to be defined by peer group comp.)	10		
4	A	Sales	Market B (APAC 1)	Drop	Business capability likely to get loss	Loss of capabilities to act/react is likely to happen (quant. Thresholds to be defined by peer group comp.)	9		
5	A	Sales	Market B (APAC 1)	Stagn	Very High	Very high impact on business (revenues, etc.), finances or workforce (quant. Thresholds to be defined by peer group comp.)	8		
6	A	Sales	Market B (APAC 1)	No sh	High	High impact on business (revenues, etc.), finances or workforce (quant. Thresholds to be defined by peer group comp.)	7		
7	A	Sales	Market C (APAC 2)	Drop	Moderate	Moderate impact on business (revenues, etc.), finances or workforce (quant. Thresholds to be defined by peer group comp.)	6		
8	A	Sales	Market C (APAC 2)	Stagn	Low	Low impact on business (revenues, etc.), finances or workforce (quant. Thresholds to be defined by peer group comp.)	5		
9	A	Sales	Market C (APAC 2)	No sh	Very Low	Very low impact on business (revenues, etc.), finances or workforce (quant. Thresholds to be defined by peer group comp.)	4		
10	A	Sales	Customer Level 1	Cust	Minor	Minor impact on business (revenues, etc.), finances or workforce (quant. Thresholds to be defined by peer group comp.)	3		
11	A	Sales	Customer Level 1	Cust	Very Minor	Very minor impact on business (revenues, etc.), finances or workforce (quant. Thresholds to be defined by peer group comp.)	2		
12	A	Sales	Customer Level 1	Cust	None	None impact on business (revenues, etc.), finances or workforce (quant. Thresholds to be defined by peer group comp.)	1		
14	A	Sales	Customer Level 1	Deliv					
15	A	Sales	Customer Level 1	Deliv	PROBABILITY of Effect	Failure Effect	Ranking		
16	A	Sales	Customer Level 2	Delay	Very High: Effect is almost inevitable	50%	10		
17	A	Sales	Customer Level 2	Delay		45%	9		
18	A	Sales	Customer Level 2	Delay	High: Repeated effect	40%	8		
19	A	Sales	Customer Level 2	Delay		35%	7		
20	A	Sales	Customer Level 2	Delay	Moderate: Occasional effect	30%	6		
21	A	Sales	Customer Level 2	Delay		25%	5		
22	A	Sales	Customer Level 2	Delay		20%	4		
23	A	Sales	Customer Level 2	Delay	Low: Relatively few effects	15%	3		
24	A	Sales	Customer Level 2	No de		10%	2		
25	A	Sales	Customer Level 2	Delay	Remote: Failure is effects	5%	1		
26	A	Sales	Customer Level 2	Delay					
27	A	Sales	Market D	Low	Detection	Likelihood of DETECTION by current risk mgmt.	Ranking		
28	A	Sales	Market D	Low	Absolute Uncertainty	cannot detect potential cause/effect and subsequent impact	10		
29	A	Sales	Market D	No M	Very Remote	Very remote chance that current crisis risk mgmt. detect potential cause/effect and subsequent impact			
30	A	Sales	Market D	No M	Remote	Remote chance that current crisis risk mgmt. will detect potential cause/effect and subsequent impact			
					Very Low	Very low chance that current crisis risk mgmt. will detect potential cause/effect and subsequent impact			
					Low	Low chance current crisis risk mgmt. will detect potential cause/effect and subsequent impact			
					Moderate	Moderate chance current crisis risk mgmt. will detect potential cause/effect and subsequent impact			
					Moderately High	Moderately high chance current crisis risk mgmt. will detect potential cause/effect and subsequent impact			

Description

- FMEA will be conducted starting from the dimension of the product broken down to the dimension of workstreams and affected areas
- Each relevant Product/ Product Family as well as function/ area will be individually assessed considering SEVERITY of impact/effect, PROBABILITY of crisis effect, and likelihood of DETECTION
- The Product of this factors will be the RISK PRIORITY NUMBER (RPN)

To do so, we will look at the Supply Chain holistically with the support of our analytics tools



Description

- We will leverage PwC's proprietary digital tools to create a fast insights of individual suppliers as well as supply chain nodes
- We will assess risks that could affect the end-to-end supply chain

In Step 2, we derive a detailed mitigation action plan with roles, resources, responsibilities and time lines

Sanitized Client Example

Mitigation action plan

ID	Mitigation on Cause/ Impact	Mitigation Actions	Responsible Person	Required Resources	Sprint No.	Start Date	Due Date	Progress (1 to 9)	Status code	Status description (if needed)	Success probability	Remarks
1	Cause	Build up improved planning ca	Max Mustermann	2 people from pri	1	03.03.2020	06.03.2020	9	Done			
2	Impact	Implement "Kurzarbeit"-meas	Max Mustermann	1 legal person, 1	1	03.03.2020	06.03.2020	2	Overdue			
3	Cause	Consider delays in customs in	Lorenal Ipsum	tbd	2	10.03.2020	13.03.2020	6	In progress			
4	Impact	Open and strong communication	Lorenal Ipsum	1 person from HR	3	16.03.2020	20.03.2020	0	Not started			
5	Cause	Upskill workers by multiple trai	Wilhelm Wunderlich	1 from HR,	1	02.03.2020	06.03.2020	6	Overdue			
6	Impact	Temporary outsourcing of prod	Max Mustermann	Task force from p	1	02.03.2020	06.03.2020	4	Overdue			
7	Impact	Send expert from different co	Lorenal Ipsum	1 from tax, 1 from	2	10.03.2020	13.03.2020	1	In progress			
8	Impact	Use Tax benefits and coopera	Max Mustermann	1 person from HR	2	10.03.2020	13.03.2020	6	In progress			
9	Cause	Identify other suppliers	Wilhelm Wunderlich	2 Supply chain m	2	10.03.2020	15.03.2020	6	In progress			
10	Impact	Seek new opportunities	Reiner Rhein	sales manager ta	1	02.03.2020	06.03.2020	9	Done			
11		business as usual -review regu	Markus Muster	not required at m	0				no action			
12		business as usual -review regu	Markus Muster	not required at m	0				no action			
13	Impact	Use Time for critical measures	Max Mustermann	1 from HR, 2 med	1	02.03.2020	06.03.2020	9	Done			
14	Impact	Ship material to different plan	Max Mustermann	tbd	3	16.03.2020	20.03.2020	0	Not started			
15		no mitigation required			0				no action			
16	Impact	Seek temporary customers	Wilhelm Wunderlich		0				no action			
17		business as usual -review regu	Markus Muster	not required at m	0				no action			
18		business as usual -review regu	Markus Muster	not required at m	0				no action			
19		no mitigation required			0				no action			
20		business as usual -review regu	Reiner Rhein	not required at m	0				no action			
		business as usual -review regu	Reiner Rhein	not required at m	0				no action			

Detailed Prevention/ Mitigation work packages

Standardization of Work Package documentation





	<ul style="list-style-type: none"> Deterioration of >50% in terms of WIP duration, impact, PI effects or investment WIP and according business case is at risk Cancelling of WIP is possible, decision needed
	<ul style="list-style-type: none"> Minor deterioration in terms of WIP duration, impact, PI effects or investment WIP and according business case still not at risk Directive decision might be useful
	<ul style="list-style-type: none"> WIP status as planned No delays, no deterioration of effects Business case expected as calculated

Description

- The systematic root cause and impact assessment will be leveraged to develop detailed mitigation actions
- Actions will either directly tackle the root cause and/or work on the impact
- Work packages** (one action or several actions) will be assigned to a dedicated team
- Based on the prioritization the actions shall be assigned to one of the execution sprints
- The action plan serves also for monitoring purposes and will be continuously updated and extended

The mitigation plan will lead to detailed work packages

Sanitized Client Example

Current situation			Status and prognosis			
<ul style="list-style-type: none">• Delivery Performance: 90% (-5%)• Plant utilization: 70% (-10%)• Inventory levels: 7 SKUs (Raw material) are below safety stock levels			Current week	Next week	+3 weeks	Work package progress
						

TOP KPIs	Long-term measures
FG Stock Raw Stock Utilization Work-force OTIF Supplier	<ul style="list-style-type: none"> <input type="checkbox"/> Re-engineer critical parts to facilitate dual-supply <input type="checkbox"/> Increase stock levels for selected raw materials <input type="checkbox"/> Set-up supplier health check tools

Short-term measures			
Problem	Mitigation action	Due Date	Responsible
40% Drop in Sales Market B (APAC) for Product family A	Reduce "Arbeitszeitkonto" send selected WF on Kurzarbeit	20.03.2020	
Supplier A not able to ship part X due to plant shut down	Insource production or critical part x Select priority customer and inform others about delivery challenges	30.03.2020	

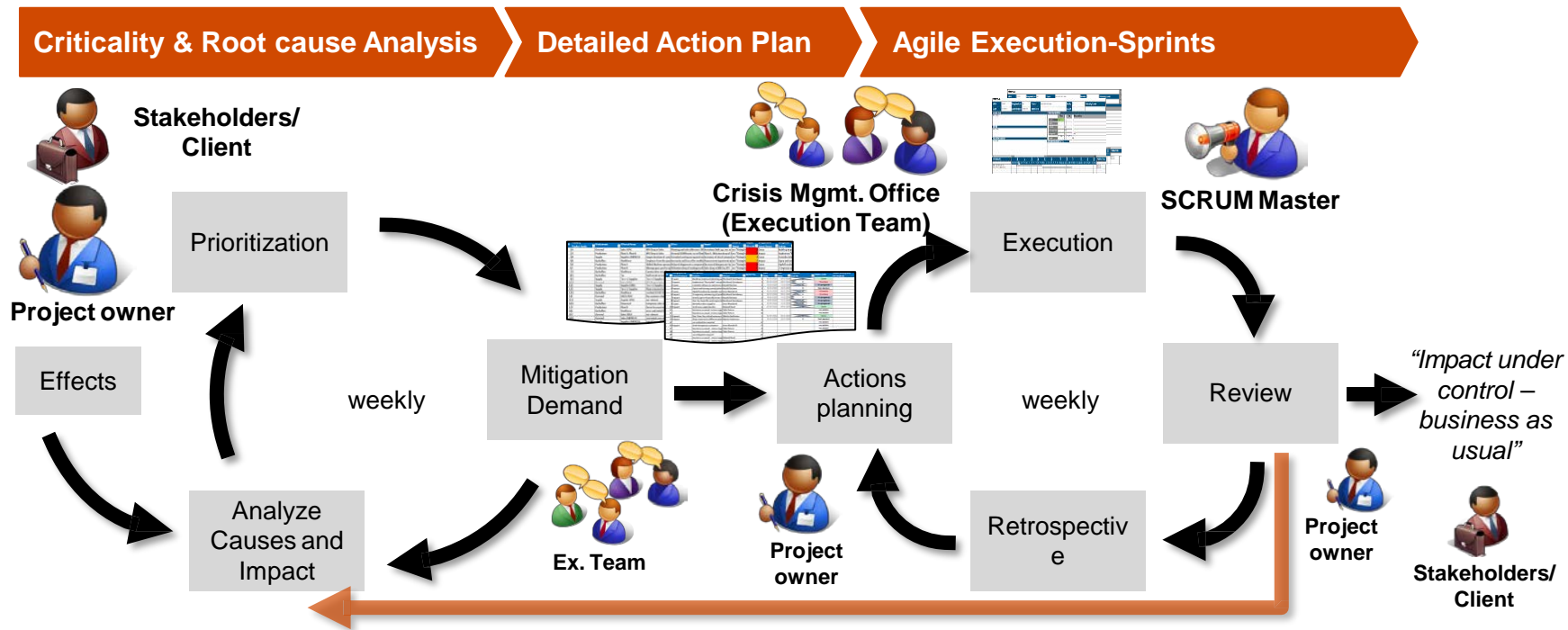
Legend: = Performance critical = Performance not on planned value = Performance = completed = open = overdue

Description

- We will leverage our proven reporting tools and process (we have been helping numerous suppliers in ramping-up their production to meet OEM deliveries)
- This enables to track progress and to provide full transparency about the success of the mitigation measures

In step 3, the actions will be executed in an agile way

Execution Sprints set-up for a fast and impact centric mitigation



Description

- The Crisis Management Office is always responsible for the sprint planning and monitoring of the progress
- In an agile sprint approach the mitigation actions will be executed
- In the review phase the impact mitigation will be assessed. Ineffective actions on the impact will be revised and adapted
- Once the impact is under control action will be released due to urgency of the reactive approach

Finally, we will establish sustainable crisis capabilities within your company

Train-the-Trainer concept to establish an agile working culture

Responsibility	Skill requirements
Certified coaches can lead Agile Crises impact Prevention/Reaction Initiatives independently	Participation in several agile crisis impact prevention/reaction initiatives with prior agile experience
Supports meeting facilitation and trainings, assists work stream owner and teams in concept creation and conduction	Prior agile experience or participation in 1 agile crisis impact prevention/reaction initiative
Create aspects of target concept by engaging selected team members in workshops	Experience in managing teams and Agile experience
Participate in all activities, provide risk insights and drive prevention/ mitigation actions	No foreknowledge required

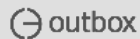
From Strategy through execution, we, PwC / Strategy&, can help you in this critical situation



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Technology
competence

Cyber
competence



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How can we help?

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A black and white photograph of a hand holding a white card. The card has the text 'Contact us' on it. The background is blurred, showing what appears to be an office setting with people.

Contact us