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Verbeteringen in verkrijgen en distribueren schaarse materialen

Allereerste gedachten—vertrouwelijk en niet ter besluitvorming

Eerste gedachtenvorming

21 MAART 2020

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Andere landen zetten 'verkeerstoren zorgmiddelen' op om schaarse middelen te coördineren

Doelen

- Creëren middellange termijn mechanismes om effectief samen te werken in adresseren (mogelijk aanhoudende) tekorten
- Helderheid creëren over verantwoordelijk-heden en bevoegdheden
- Data-gedreven keuzes maken in verwerven en verdelen van materialen

Activiteiten

- Neerzetten verkeerstoren (deelnemers, governance, processen, mandaten)
- Creëren van besluitvormingsframework om snel beslissingen neer te kunnen zetten
- Inrichten van benodigde analyses
- Inrichten randvoorwaarden (bijv. diplomatieke ondersteuning)
- Opzetten risico-mitigitatiesystematiek

In niveaus toe te werken naar volwassen control tower

Nu op niveau 0-1

Level 0

Ad-hoc information sharing

Informal cross-Agency coordination mechanisms

Limited end-to-end supply chain visibility

Level 1

Coordinated information sharing

Formal coordination mechanisms

End-to-end supply chain visibility of selected products

Level 2

Integrated information sharing

End-to-end supply chain visibility of portfolio of critical health products

Sustained cross-Agency coordination mechanisms

Some level of forward looking scenario's of demand and supply

Level 3

Near real-time supply chain visibility

Adaptive decision making and oversight capabilities

Advanced identification of emerging changes

Detailed forward looking modelling of demand and supply

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4-5 functies nodig—te verenigen in een 'verkeerstoren'

1. Vraag aggregatie | Weten hoeveel van wat er wanneer nodig is
   - Bij ziekenhuizen en andere zorgaanbieders
   - Van in elk geval PBM, mogelijk ook andere middelen

2. Aanbod aggregatie | Weten hoeveel van wat er waar beschikbaar is
   - Inkoop (m.n. buiten Nederland)
   - Grotere of nieuwe Nederlandse productie
   - Alternatieve voorraden (bijv. chemische industrie)

- Zowel op (zeer) korte termijn (72 uur tot 4 weken) als op middellange termijn ('tijdelijk nieuw normaal')
- Zowel bottom-up (aggregatie) als top-down (scenario's om noodzaak voor verdergaande maatregelen in te schatten)

3. Regie op inkoopproces (incl. neerzetten evt. randvoorwaarden)
   - Een groter deel van de internationale productie in goede coördinatie verkrijgen (tegen aanvaardbare kosten)
   - Afdekken van inkooprisico's voor OEMs/ distributeurs/ ziekenhuizen
   - Betere internationale logistiek en douane-afhandeling om producten in Nederland te kunnen krijgen
   - Aanpassing reguleringen om breder set producten in te kunnen zetten (over- en vooral onder-gespecificeerd)

4. Evt: Regie op productie in Nederland

5. Regie op verdeling en distributie
   - Goede en eerlijke verdeling tussen zorgaanbieders
   - Goede en veilige opslag, transport, logistiek in Nederland

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Elementen van 'verkeerstoren' nodig om doel te bereiken

1 Vraag	Weten hoeveel van wat wanneer nodig is/ gaat zijn	Onduidelijk of nu voldoende duidelijk is wat nodig is (van alle relevante productcategorieën en ook na 72 uur
2 Aanb	Weten hoeveel van wat er waar beschikbaar is/ kan komen	Geen integraal overzicht van wat er beschikbaar is, zowel via inkoop als productie als alternatieve voorraden; meerdere loketten
3 Inkoop	Een groter deel van de internationale productie in goede coördinatie verkrijgen (tegen aanvaardbare kosten)	Meerdere partijen zitten nu achter zelfde producenten aan, wat prijzen opdrijft en marktmacht (door volumebundeling) mist
	Betere internationale logistiek en douane-afhandeling om producten in Nederland te kunnen krijgen	Ervaringen uit meerdere landen laat zien dat ook na verkrijgen van producten, deze niet altijd (voldoende snel) op bestemming komen
	Aanpassing reguleringen om breder set (over- en vooral onder-gespecificeerd) of nieuwe productielijnen in te kunnen zetten	Initiatieven om andere producten of nieuwe productielijnen in te zetten lopen nu soms vast op regulering/ certificering
4 Productie	Grotere of nieuwe Nederlandse productie	Grote hoeveelheid gefragmenteerde initiatieven die (o.b.v. ervaring in Italië) wel cruciaal zijn, maar coördinatie/schaal behoeven
5 V&D	Goede en veilige opslag, transport, logistiek in Nederland	Diefstallen nemen toe, logistieke beperkingen door ziekte of verdere social distancing vormen risico voor verspreiding
	Goede en eerlijke verdeling tussen zorgaanbieders	Belangrijk dat we maximale zorgwaarde realiseren voor de aangekochte middelen, eerlijke verdeling cruciaal voor draagvlak

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Wie besluit over wat?

1 Vraagaggregatie

- Bottom up inzicht vraag zorginstellingen
- Top-down macro-projecties
- Inzicht in voorraden

Welke partij kan macro-projecties maken?

ROAZ
Inventariseert

RIVM
Levert input

→ **LNAZ**
Stelt vast

2 Aanbodaggregratie

- Wat inkopen?
- Wat produceren?
- Welke voorraden elders benutten?

Inkoopcombinatie
Inventariseert

VWS en EZK
Levert Input

→ **N.t.b.**
Stelt vast

Welke partij kan aanbod-aggregatie vaststellen?

3 Regie op inkoop

- Wie koopt wat in?
- Welke overheidsinterventies nodig (douane, diplomatiek, garanties)?

VWS
Bepaalt mandaat o.b.v. vraag en aanbod aggregatie

→ **Inkoopcombinatie**
Inventariseert

→ **Inkoopcombinatie**
Besluit

4 Verdeling en distributie

- Hoe komt het naar NL?
- Waar slaan we op?
- Hoe verdelen we?
- Wie distribueert naar waar?

GGD/GHOR
Besluit over verdeling

→ **Inkoopcombinatie**
Besluit over transport/logistiek

→ **Distributeurs**
Distribueren

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Verkeerstoren heeft 8 verschillende type deelnemers, die breed afstemmen met andere partijen

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Hoe te financieren?

Te bepalen of ziekenhuizen inkoopcombinatie of afzonderlijke leden betalen

Te bepalen of ook producenten lid kunnen zijn

Te bepalen of combinatie of afzonderlijke leden betalen

Verzekeraars → **Ziekenhuizen** → **Consortium** → **OEM**

Leden (zkh) | Leden (distri) | Leden (OEM)

VWS garandeert/ financiert meerkosten COVID

VWS garandeert afname door ziekenhuizen van (leden van) consortium binnen afgesproken bandbreedte

Mandaat voor type middelen, product-eisen prijsmaximum en maximale volumes

Vergoeding voor inkoopkosten plus gemaakte kosten (o.b.v. vaste afspraken?)

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Scope 'tower' te bepalen o.b.v. mogelijke prioritieten

Top Priority ↓ Lower Priority

		Category	Product	Product Fit
COVID-19	Prevention	Vaccines	TBD	n/a
	Protection	Masks	N95	Fit
			N99	Over-spec'd
			Surgical	Over-spec'd
		Suits	Isolation	Fit
			Surgical	Over-spec'd
		Gloves	TBD	Fit
		Eye protection	Goggles	Fit
			Face shield	Fit
			Safety Glasses	Under-spec'd
			PAPRs (full face respirators)	Over-spec'd
	Diagnosis	Diagnostics	2019-nCoV (RT)-PCR Diagnostic Panel	Fit
	Treatment	Therapeutics	Remdesivir	Not approved for COVID-19 use
			Favipiravir/Avigan	Not approved for COVID-19 use
			Chloroquine	Not approved for COVID-19 use
		Devices	Ventilators	Fit
	Response	Hospital Equipment	Hospital beds	n/a
			IVs/saline	n/a
Secondary Impacts	Health products using same raw materials	Therapeutics	X	
			A	
		Medical devices	Y	
		Other products	Z	
			B	
	Health products manufactured in (likely) impacted geographies	Therapeutics	Heparin	
			Antibiotics	
			C	
		Medical devices	Saline	
			Orthopedic implants	
			Thermometers	
		Other	Hand sanitizer	
	Other products manufactured in (likely) impacted geographies	Household	Diapers	
			D	
			P	

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Appendix

Achtergrond/ stand van zaken productie en logistiek

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COVID-19 forces economies into a lockdown cycle

G20 countries
as of March 17, 2020

	Pre-lockdown	In-lockdown	Post-lockdown
Situation	• Production stopped in regions heavier impacted by virus • Limited time and sometimes options for preparation	• (Full or part-time) plant downtime across broad geographic area (incl. upstream) • Capacity crunches in supply chain due to 2nd order effects	• Business and production commence to recover • Magnitude and duration of re-bound uncertain
Countries			
Key questions	• Which suppliers/parts are high risk? • How to protect our staff? • Which short-term options ensure production and supply? • How to optimize our working capital?	• How to maintain production? • How to stay competitive in a shrinking market? • How to support sub-tier supply chain? • How to fund the lockdown and the rebound after? • How to prepare for the rebound?	• How to re-establish production as smoothly as possible? • How to maintain financial stability? • How to prepare for an anticipated higher economic volatility? • Which measures to execute first?

Note: Individual sectors or regions of a single economy might belong to different lockdown scenarios
Source: BCG research as of March 17, 2020

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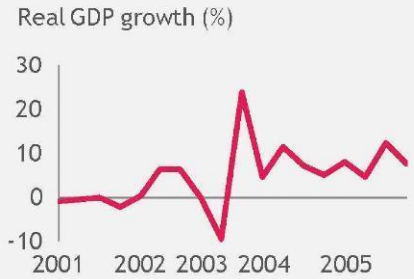
All previous pandemics caused V-shaped recessions

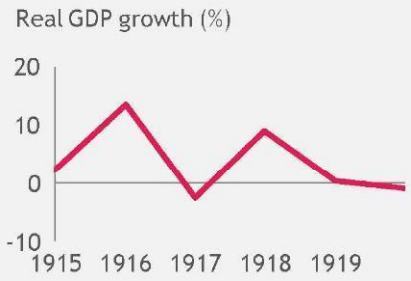
2002 SARS



1968 H3N2 "Hong Kong" flu

1958 H2N2 Asian flu

1918 Spanish flu



Note: Real GDP growth is quarterly except for 1918, when its yearly
Source: BCG Center for Macroeconomics analysis, Harvard Business Review 03-2020

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V-shaped recession

V

"Classic" real economy shock, a displacement of output, but growth eventually rebounds.

In this scenario, annual growth rates could fully absorb the shock or sometimes even surpass pre-shock annual growth rates.

Empirical evidence suggests this scenario to be most likely.

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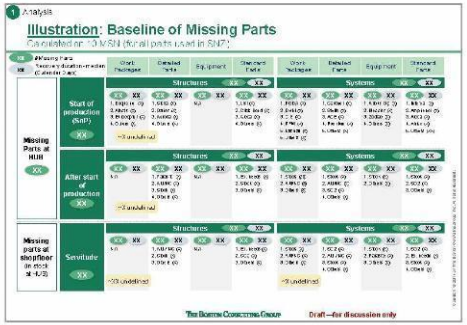
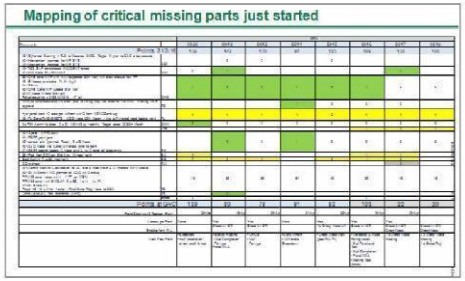
Ensure continuity of supply (1/2): Identification and mitigation of potential missing parts

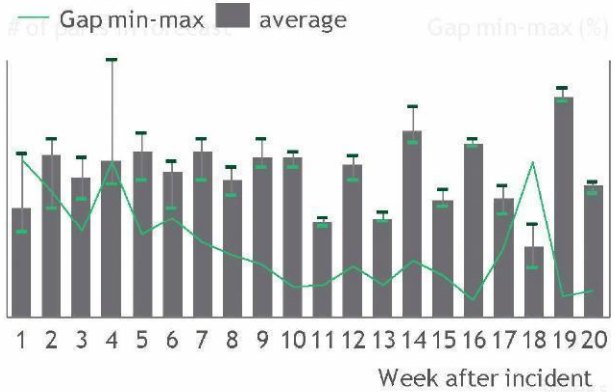
Client example

Baselining of potential missing parts and criticality assessment





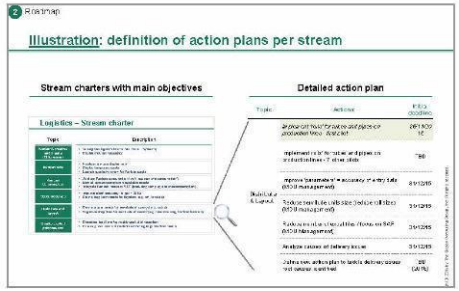
Prediction of missing parts and root cause analysis



1. Logistics ! COVID-19 supply chain related
2. Inventory
3. Planning
4. Manufacturing site
5. Procurement ! COVID-19 supply chain related

Action planning and execution

- Buffer and inventory sourcing
- Re-Planning, re-scheduling, ordering
- Alternative routes, vendors
- Second source ramp-up
- Short-term recovery with selected supplier



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Ensure continuity of supply (2/2): T&L learnings from China COVID-19 outbreak

	Domestic	Export/ Import
Issues and challenges	• Trucking employee shortages as workers can't return • Insufficient trucking capacity to handle backlog of factory production and imported components as factories come back online Restrictions on trucking, with frequent changes • Increased medical exam standards at ports	• Severe employee shortages at ports • Logistical delays causing supply chain congestion, leading to issues such as extreme demand for refrigeration plugs in container terminals • Severe air freight shortages due to grounding of major airlines • Border crossing closures and slowdowns (e.g., Russia)
Deliberate actions	• Businesses rerouting ships to Hong Kong and alternative Chinese ports then trucking to ease port congestion	• Halting standard ship services (e.g., crew changes and sludge/garbage disposal) to best use available labor • China's customs and railway departments acting to ensure China-Europe freight train passage

Learnings

- Alternative routes
- Alternative suppliers
- Alternative shipping (e.g. train vs. air)
- Alternative parts

T&L: Transport & Logistics
Source: Desk research, BCG analysis

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Achtergrond/ stand van zaken materialen

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Preliminary analysis on masks and gowns gives context to inform deeper analysis

	N95 Masks	Protective Gowns	Deeper Analysis
Plan	• Supply chain nodes diverge in distribution phase due to differences in medical and individual end-use	• Supply chain nodes for medical use are consistent throughout process • Industrial use protection are manufactured at different sites	• Aggregate demand estimates • Assess risk in supply chain changes
Source	• N95 is a standardized product with approvals from NIOSH and FDA (medical) • Filtration media, a key raw input, sourced 90% overseas	• Products for medical use are FDA-approved isolation and surgical gowns • Confusion exists in healthcare sector on what products are approved • Raw materials sourced globally	• Determine which substitutes exist and what are in R&D • Evaluate risks for sourcing raw materials
Make	• Manufacturing is primary chokepoint • Concentrated supplier base, with top 3 suppliers 45% of volume • Over 90% of US supply manufactured overseas, ~30-50% in China	• Manufacturing is primary chokepoint • Majority of US supply manufactured in China, higher quality gowns in Latin America • Production capacity is ~80%, est. opportunity to increase ~25%	• Assess manufacturing capacity for key players • Analyze manufacturing capability to scale
Deliver	• Distribution to medical settings highly concentrated among top players • Distributor base much more fragmented for individual end use	• Concentrated medical distributors • Distributors impose limitations in an effort to avoid stock-outs if buyers increase orders when in crisis	• Analyze US distribution network • Assess transportation and warehousing risks

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Task 1: Analysis will reveal insights at each node of supply chain and help prioritize risk mitigation steps

Objectives

- Evaluate supply chain for selected products to fill information gaps needed to facilitate strategic decision making
- Understand risk mitigation opportunities and develop framework for prioritization

Activities

- Map global, US supply chain and identify challenges in capacity building
- Identify the policy and regulatory levers that can be deployed to increase supply
- Evaluate feasibility and potential impact of different risk mitigation strategies

Outputs

- Deep dive analysis and risk mitigation strategies of critical health products

Plan	Source	Make	Deliver
• Aggregate demand estimates • Assess risk in supply chain changes	• Determine which substitutes exist and what are in R&D • Evaluate risks for sourcing raw materials	• Assess manufacturing capacity for key players • Analyze manufacturing capability to scale	• Analyze US distribution network • Assess transportation and warehousing risks

Questions answered will depend on products selected

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Back-up: Our framework for analyzing supply chain resilience

Plan

- Determine nodes in supply chain
- Evaluate system's ability to ramp up capacity
- Assess risk of making a change in the supply chain
- Aggregate demand estimates

Source

- Determine range of products that make up category
- Evaluate where raw materials are primarily sourced
- Determine which substitutes exist and what, if any, are in R&D

Make

- Determine where products are manufactured
- Evaluate manufacturing capacity
- Analyze manufacturing capacity to scale (volume, time)

Deliver

- Determine the primary US distributors
- Analyze US distribution network
- Assess risks within transportation and warehousing

Task 3: Sample template: Heat map of priority products

COVID-19 Protection Countermeasures

Product hierarchy	Masks/Respirators	Suits	Gloves	Eye Protection	Diagnostics
Product fit with current guidance	N95	Isolation	Vinyl	Goggles	Lab test
			Other polymer	Face shield	
Approved substitute (Over spec'd)	N99	Surgical	Chemotherapy	PAPRs (Full face respirators)	
	Surgical		Surgical		
Potential substitute, not in current guidance (under spec'd)			Latex	Safety glasses	
Potential substitute, not approved in US		Coveralls			

Key: High availability | Moderate availability | Low availability | No availability

Product availability is illustrative

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Task 3: Sample template: Heat map of priority products

Promising COVID-19 Therapy Countermeasures

Product hierarchy	Potential Prevention	Potential Treatment
Product fit with current guidance		Ventilators
Potential substitute, not approved for COVID-19 use	Vaccine	Remdesivir
		Chloroquine
		Favipiravir/Avigan
Potential substitute, not approved for use		New therapeutic

Potential COVID-19 Impacted Products

Product hierarchy	Pharmaceuticals	MedTech	Hospital	Individual
Life-saving	Heparin			
	Antibiotics			
	Saline			
Life-aiding		Orthopedic implants	Hand Santizer	Hand Sanitzer
Essential		Thermometers		Diapers
Non-essential				

Key: High availability | Moderate availability | Low availability | No availability

Product availability is illustrative only

Appendix

Typische aanpak supply chain problemen

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Proposed approach for evaluating problem

1 → 2 → 3 → 4 → 5

1 Assess market dynamics

Perform high-level supplier landscape analysis and define economic/ regulatory drivers

2 Prioritize categories

Select product categories (e.g. antibiotics) for further analysis

3 Analyze supply chains

Create visibility and highlight network risks through SC mapping and analysis

4 Review mitigation

Evaluate feasibility of different risk mitigation strategies

5 Recommend gov't Strategy

Recommend mitigation plan and next steps for ASPR

Timeline and depth of analysis dependent on client direction

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Leveraging a proven framework for mapping and analyzing the SC ensures that all potential inputs are considered

Supply chain vision and strategy

- Customer segmentation
- Supply chain value drivers
- Risk management/external shock response

End-to-end supply chain integration

- Network and lead time management
- Make vs. buy
- Complexity management
- Quality management

Plan

Network design

- Supply/demand planning
- Performance management

Source

- Strategic sourcing
- Procurement excellence
- Supplier relationship management

Make

- Production system
- Process/tech strategy
- Production excellence

Deliver

- Warehousing and distribution
- Order fulfilment and customer service

Supply chain enablers

- Operating model (org. structure, governance, metrics and reporting)
- Operations processes
- People and culture
- Technology (IT, digital, data capabilities)
- Cross-functional policies and regulations

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For Discussion: Questions that can be addressed in supply chain analysis

Plan
- Network design
- Supply/demand planning
- Performance management

Source
- Strategic sourcing
- Procurement excellence
- Supplier relationship management

Make
- Production system
- Process/tech strategy
- Production excellence

Deliver
- Warehousing and distribution
- Order fulfilment and customer service

- What is the forecasted demand for a particular product / category?
- What are the financial and risk implications associated with making a change in the supply chain?
- How can externalities/network risks be better predicted

- Where are APIs and excipients primarily sourced?
- What branded and generic products are approved for use in the US?
- Do substitutes exist and/or are any in R&D?

- Where are products manufactured (e.g. dressed, packaged)?
- What is the manufacturing capacity for a particular product / category?

- Who are the primary distributors in the US?
- What does their distribution network look like?
- What risks exist with transport & warehousing?

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