



Achieving Strategic Fit & Scope  
to address uncertainties in the Supply Chain

# All supply chains are affected by a diverse group of uncertainties

Chief among these uncertainties are the following:



**Product characteristics** such as physical attributes, storage and temperature -related requirements, shelf life, perishability among others.



Expected **service and product availability levels** required to meet the needs of the different clients across all levels of the supply chain.



Capacity to **respond to the needs of all clients** across all levels of the supply chain in an acceptable lead time.



**Supplier performance levels** associated with quality, operational, delivery issues that influence your capacity to meet demand.



**Demand uncertainty** associated with potential limited understanding of the market, amplified distortion associated with the bullwhip effect.

**External environmental factors** associated with political, government policies, competitor behaviour, etc.



**Internal environmental factors** associated with operational coordination across the same levels of the supply chain.

which influences the capacity to respond to the needs of the client

The Supply Chain Responsiveness spectrum has the following characteristics



Highly efficient



Supply Chain



Highly responsive

and it addresses the following questions:

Supply the demand at the **lowest cost**

**Primary goal**

Respond **quickly** to the demand

**Minimize inventory** to reduce associated costs

**Inventory Strategy**

Maintain **buffer** to address demand/supply uncertainty

Reduce when feasible **without increasing costs**

**Lead-time Strategy**

Reduce **aggressively**, even when increasing costs

Select based on **cost and quality**

**Supplier Strategy**

Select based on **quality, speed, flexibility**

Source: Adapted from Marshall L. Fisher, "What is the right supply chain for your product?", Harvard Business Review (March-April 1997), 83-93

# In this current context where COVID-19 is disrupting all aspects of our lives

Overview of the cumulative COVID-19 cases in the world:



45%

of all Low and Low/High-Middle Income countries had a **stock-out of at least 1 antigen** in 2019, a 15% increase since 2010

Source: A review of the Joint Reporting Form & the WHO/UNICEF Estimates of National Immunization Coverage to identify SC related barriers to immunization access

26%

of all LIC and L/H-MICs were unable to **identify the cause for the stockout** in 2019, a 16% increase since 2016

Source: A review of the Joint Reporting Form & the WHO/UNICEF Estimates of National Immunization Coverage to identify SC related barriers to immunization access

4.3%

contraction of the Global Economy

Source: UNCTAD – Impact of the Covid-19 Pandemic on Trade & Development

+70

million confirmed cases in the world

Source: WHO Weekly operational update - 14 December 2020

+50

candidate vaccines are in human trials

Source: WHO EURO Update on the pandemic – 3rd December 2020

# Identifying and addressing these sources of uncertainty

## Current COVID-19 related supply chain uncertainties



Most COVID-19 vaccines have different **product characteristics** which include but are not limited to temperature requirements, shelf life and ancillary products.



Potential widespread doubts around COVID-19 immunisation efforts will impact **expected service levels and availability requirements**



Varying degrees of logistical capacity to **respond to programmatic needs** in reduced lead times associated with limited end-to-end assessments and scenarios.



Vaccine **manufactures have limited capacity** to scale up production to meet global needs in the initial stages of the immunisation campaign.



Behavioural change related interventions will have a significant role in **driving the demand** and mitigating uncertainty levels.

Implementation of **National policies** to encourage and support the COVID-19 national immunisation efforts



Procurement efforts **through parallel mechanisms** (COVAX Facility, Bilateral agreements, regional mechanisms)

# are of paramount importance to achieve a supply chain strategic fit

that contribute towards increasing readiness levels to reach all



Assess the immunisation supply chain to understand its operational, strategic capabilities, availability of resources and identify strengths and gaps.



Develop a strengthening roadmap to lead the efforts towards preparing the supply chain for vaccine deployment based on the outcomes of the previous stage.



Deploy all corrective and strengthening activities across all relevant areas of the immunisation supply chain to address identified gaps.



Monitor the impact of all deployed interventions to review all attained progress and, if required, amend the strengthening plan.



Reception, management and distribution of all Covid-19 vaccine and other health products to support immunisation efforts.

## This strategic fit can be achieved by:

Stress-testing the supply chain

Proactive stock management

Coordinate all activities

Use cross-functional frameworks

Monitor key indicators

Assessing the maturity level

Strengthen HR practices

Adapt solutions to local context

Evaluate End-to-End impact

Redistribute stock as necessary

Enhancing E2E visibility

Improve Track & Trace capacity

Transition towards resiliency

Adapt to shifting conditions

Coordinate w/ campaign efforts

to achieve this goal, it is important to consider these crucial factors

that contributes towards increasing readiness levels to reach all



Understanding how **mature and resilient the immunisation supply chain** across all of its components its of paramount importance to meet programmatic needs

[UNICEF's Maturity Model](#)



**Stress testing the supply chain** allows the development of different scenarios to address potential impact shocks and measures operational gaps.

[UNICEF's SCANIT](#)



Boosting operational capacity by **engaging private sector vendors** across different areas is recommended to reach all in compressed timelines.

[UNICEF's guide on private sector engagement](#)



Addressing potential diversion, falsification and sub-standard products in the health system through **Track and Trace systems**.

[WHO's Policy Brief on Traceability](#)



Transforming raw data into evidence and matching supply and health indicators to inform decisions through enhanced **Data science and analytics** practices.

[UNICEF's prescriptive analytics to prevent stock-outs.](#)

# Identifying strengths and gaps to create a baseline

Supply chain maturity level?

Category	Level 1	Level 2	Level 3	Level 4	Level 5
Leadership & Governance	The importance of supply chain leadership is acknowledged throughout the government system and positioned accordingly.	Comprehensive HR for SCM assessment is completed and integrated into national supply chain strategies and plans.	Established HR plan, including strategies to recruit, develop, and retain the national supply chain workforce. Training and HR policies in place.	Supply chain managers have the necessary training, technical, and managerial skills, capacity, and accountability within their roles of operations.	Supply chain management capabilities are enhanced and the national supply chain workforce is equipped to meet the country's needs.

Supply Chain Strengthening SCSC

PROVIDE THAT DELIVER Building Human Resources A Theory of Change

across the following key supply chain areas



Assess the immunisation supply chain to understand its operational, strategic capabilities, availability of resources and identify strengths and gaps.

Activity	Objective	Link to VIRAT & NDVP	Recommended tool(s)
Assess the cold chain capacity and understand programmatic requirements.	Understand the capacity, and potential gaps, required to meet all programmatic needs.	VIRAT – H3 – Mapping CC storage NDVP – Assess vaccine, logistics and CC capacity needs.	1. <a href="#">Immunisation SC sizing tool</a> .
Stress test the supply chain and develop different scenarios to address different requirements.	Analyse supply chain capacity and gaps (storage, distribution, costs, etc) to identify the best SC design to match operational needs.	VIRAT – H3 & H4 – Fill supply gaps. NDVP – Prepare the SC for vaccine deployment and reverse logistics	1. <a href="#">Supply Chain Analysis and Intelligence Tool (SCANIT)</a>
Review the national information system's capacity to track and trace products.	Review the capacity of the supply chain to a) provide stock level, consumption, wastage reports and b) E2E product traceability.	VIRAT – H7 – Update stock management tools. NDVP – Manage and track vaccines effectively.	TBD
Assess the immunisation supply chain across all of its components.	Identify gaps across all areas of the supply chain (i.e., HR, financing, etc.) to inform the development of a strengthening roadmap to increase preparedness levels.	VIRAT – H1 – NTWG. NDVP – Ensure supply chain system functionality.	1. Supply Chain Maturity Model ( <a href="#">training site</a> , <a href="#">assessment site</a> )



# creating a country and context-specific readiness roadmap

and invest to further strengthen these components



Develop a strengthening roadmap to lead the efforts towards **preparing the supply chain for vaccine deployment** based on the outcomes of the previous stage.

Activity	Objective	Link to VIRAT & NDVP	Recommended tool(s)
Strengthening the <b>Human Resources</b> to fulfil updated or new roles & responsibilities.	Ensure that staff across all areas of the supply chain and levels of the system are properly trained.	VIRAT – F1 – Training plan NDVP –Strengthen supply chain human resource capacity.	1. <a href="#">HR for Supply Chain Management</a> 2. <a href="#">Training needs assessment</a> . 3. Workforce Optimisation Tool.
Reinforcing <b>supply and stock management</b> practices.	Ensure proactive stock management practices that prevent stock-risky situations and enable accurate and timely reporting.	VIRAT – H7 – update stock management tools and SOPs NDVP –Assess vaccine, logistics and CC capacity needs and reverse logistics.	1. <a href="#">Preventing in-country stock-risky situations through prescriptive analytics</a>
Improve supply chain <b>track and trace</b> capability.	Where feasible, establish a traceability system for health products	VIRAT – H7 – Update stock management tools. NDVP – Manage and track vaccines effectively.	1. <a href="#">Guidance on traceability</a>
<b>Private sector engagement</b> to complement logistical capacity.	When required, engage 3PLs to increase operational capacity	VIRAT – H5 – Contracting. NDVP – UCC preparation.	1. <a href="#">Private sector engagement</a>
Strengthen <b>waste management</b> capacity.	Plan the appropriate mechanisms to address all created wastage	VIRAT – H6 – Disposal of wastage. NDVP – Manage healthcare waste	1. <a href="#">Guidance on traceability</a>

# coordinating the deployment of all strengthening activities

and adopting these good practices



Deploy **all corrective and strengthening activities** across all relevant areas of the immunisation supply chain to address identified gaps.

Recommendation	Rationale
Coordinate through the NTWG all ongoing activities	Ensure collective impact across all involved stakeholders by coordinating all engagements.
Adapt recommendations to country-specific practices and conditions.	To ensure alignment with the local context and current immunisation plans.
When possible, leverage deployed interventions to <b>increase long-term resiliency</b>	Leverage COVID-19 related resources and TA to strengthen the immunisation supply chain and increase its resiliency.

# monitoring attained impact

to amend –if required– the strengthening plan and register success & lessons learned



**Monitor the impact of all deployed interventions** to review all attained progress and, if required, amend the strengthening plan

Recommendation	Rationale
Implement <b>cross-functional frameworks</b>	Cross-referencing indicators across areas (supply chain, demand, health) provides programme-wide understanding.
Evaluate E2E impact while monitoring area-specific functions	As SC areas share interdependencies which affect each other it is crucial to ensure these all contribute towards one shared objective.
Register success and lessons learned to <b>adapt the plan to changing conditions</b>	Lessons learned provide important information to amend any plan and adapt to ever-shifting conditions.



**Reception, management and distribution** of all Covid-19 vaccine and other health products to support immunisation efforts.

## High-level readiness assessments

#	Name	Description	Link
1	WHO/UNICEF Vaccine Readiness Assessment Tool.	This tool provides a roadmap for countries to plan for COVID-19 vaccine introduction and a structured framework for countries to self-monitor their readiness progress against key milestones. Countries can use the VIRAT to identify area where support may be needed.	<a href="#">Tool</a>

## Enhancing in-country readiness

### Stage 1 – Assessing the national immunisation supply chain

#	Name	Description	Link
1	Cold Chain Equipment Inventory and Gap Analysis tool.	This tool provides support for vaccine inventory management.	<a href="#">Tool</a>
2	Immunization supply chain sizing tool.	This tool provides information on equipment, supply and budget requirements needed to support deployment and vaccination operations based on the size of the population to be vaccinated.	<a href="#">Tool</a>
3	Supply Chain Maturity Model.	This model identifies gaps and priorities across all areas of the supply chain which serves as the foundation to develop context-specific strengthening roadmaps, informs government response plans and serves as an M&E framework to measure attained progress from all deployed interventions.	<a href="#">Training site</a> <a href="#">Assessment site</a>
4	Supply Chain Analysis and Intelligence Tool (SCANIT).	This tool analyses in-country supply chain design and operational capacity (storage, distribution capability and network design) to provide national and sub-national decision-makers with an understanding of trade-offs between different supply chain scenarios.	<a href="#">Tool</a> Time-limited access
5	Guideline to strengthen national data systems.	This guideline provides a methodology to review national information system across all of its components, these are Environment (i.e., policies), Capability (i.e., data analytics capacity) and Enablers (i.e., technology). The results of this assessment will inform an improvement plan to increase the government's capacity to mine and exploit data to inform decision-making processes.	Guideline
6	Pre & post-service delivery checklist.	Operational checklist for monitoring availability of service delivery needs.	Checklist



## Stage 2 – Developing the strengthening roadmap

### Human Resources

#	Name	Description	Link
1	Human Resources for Supply Chain Management.	Assessment tool for estimating HR-related needs for health supply chains across four pathways. The tool estimates staff gaps and needs for each SC level and function.	<a href="#">Tool</a>
2	Training needs assessment.	This tool provides a set of resources for country-driven and low cost SCM training mapping, analysis and planning. to identify training based on defined SCM competencies.	<a href="#">Tool</a>
3	Workforce Optimisation Tool.	This tools creates staffing scenarios using storage locations, demand data and distribution processes of products across supply chain network.	Tool

### Data Analytics & Information systems

#	Name	Description	Link
1	Data triangulation methodology to inform programme-wide strategic and tactical decisions.	This document provides a detailed explanation on how to match supply chain and health-related data to provide programme-wide management and increased capacity to exploit available operational and programmatic data to inform decisions.	Guideline Example Tool
2	High-level roadmap for developing in-country track and trace through GS1 standards	This document provides an overview on how countries can implement GS1 compliant track and trace systems to further increase their capacity to address sub-standard products, falsification and diversion.	<a href="#">Guidance</a>

### System Design & Logistics Operations

#	Name	Description	Link
1	Route Optimisation Tool (ROOT)	This tool identifies optimal routes for the distribution of health products based on transit times and risks to health products due to poor road conditions.	<a href="#">Tool</a>
2	Private Sector Engagement	This document provides an overview on how the private sector can be approached to enhance operational capacity through hiring third party logistic vendors.	<a href="#">Guideline</a>
3	Vaccine Management and Logistics Support	This document provides guidance on management and logistics support for deploying vaccines.	<a href="#">Guideline</a>
4	Appropriate disposal of Immunisation waste	This tool provides a detailed description on how to implement waste management processes in the country to address all immunisation-related waste.	<a href="#">Tool</a>



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