

The background of the slide features three glass vials and a syringe. The vials are arranged in a row, with the one on the right being the tallest and the one on the left being the shortest. The syringe is positioned diagonally in the foreground, pointing towards the top left. The entire scene is set against a light blue background with soft shadows.

**Parameters that influence the
supply chain in emerging countries**

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Hanoi, 27 November 2019**

Vaccine Supply Chain Innovation

DCVMN Focus:

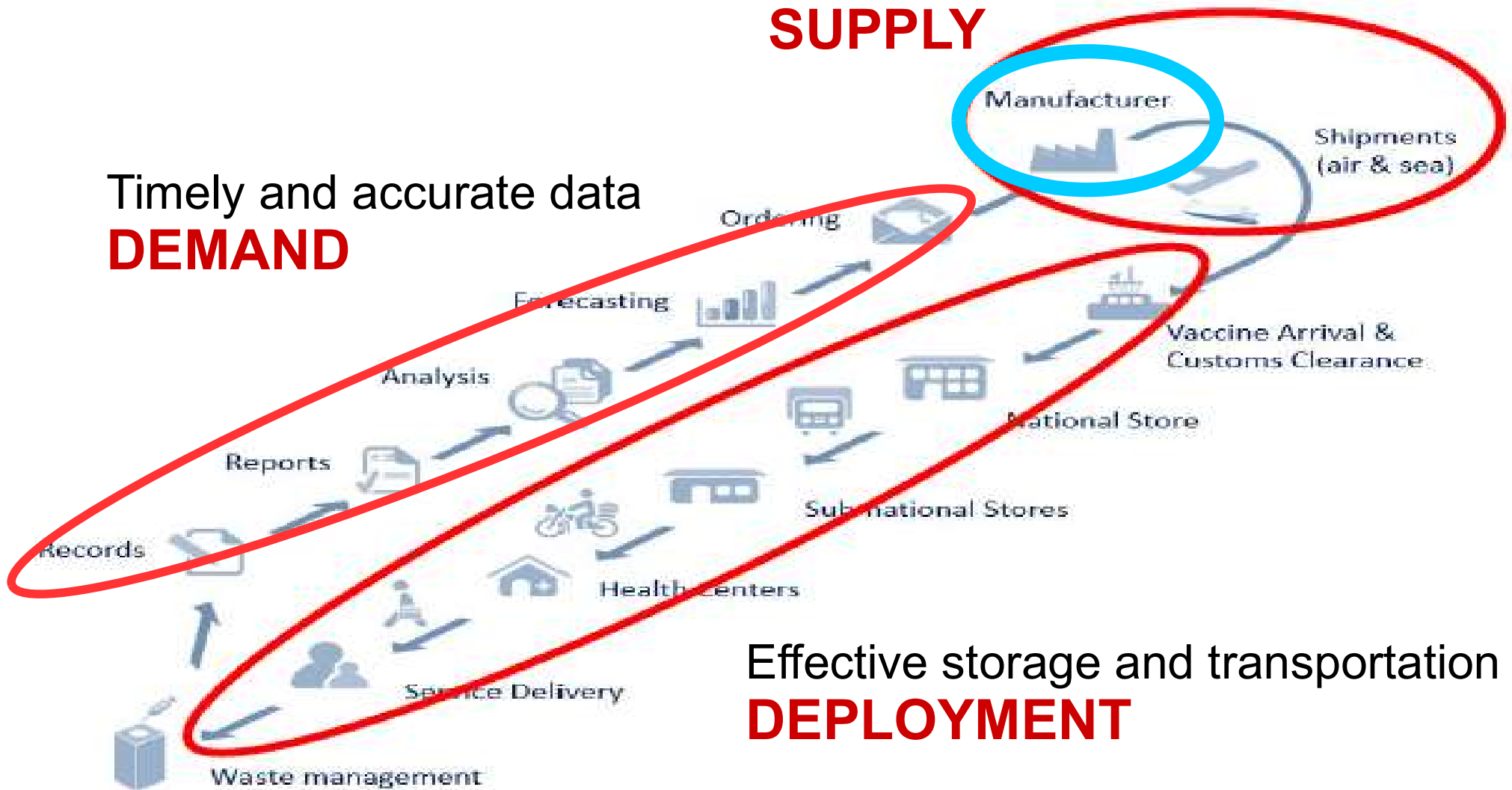
Challenges where manufacturers can impact positively the vaccine supply chain in countries to make it more responsive and resilient for improved supply security

Challenges where manufacturers can effectively work together to promote and enhance innovations in strengthening the vaccine supply chain

The country segments of the vaccine supply chain post-manufacture

On-time delivery
SUPPLY

Timely and accurate data
DEMAND

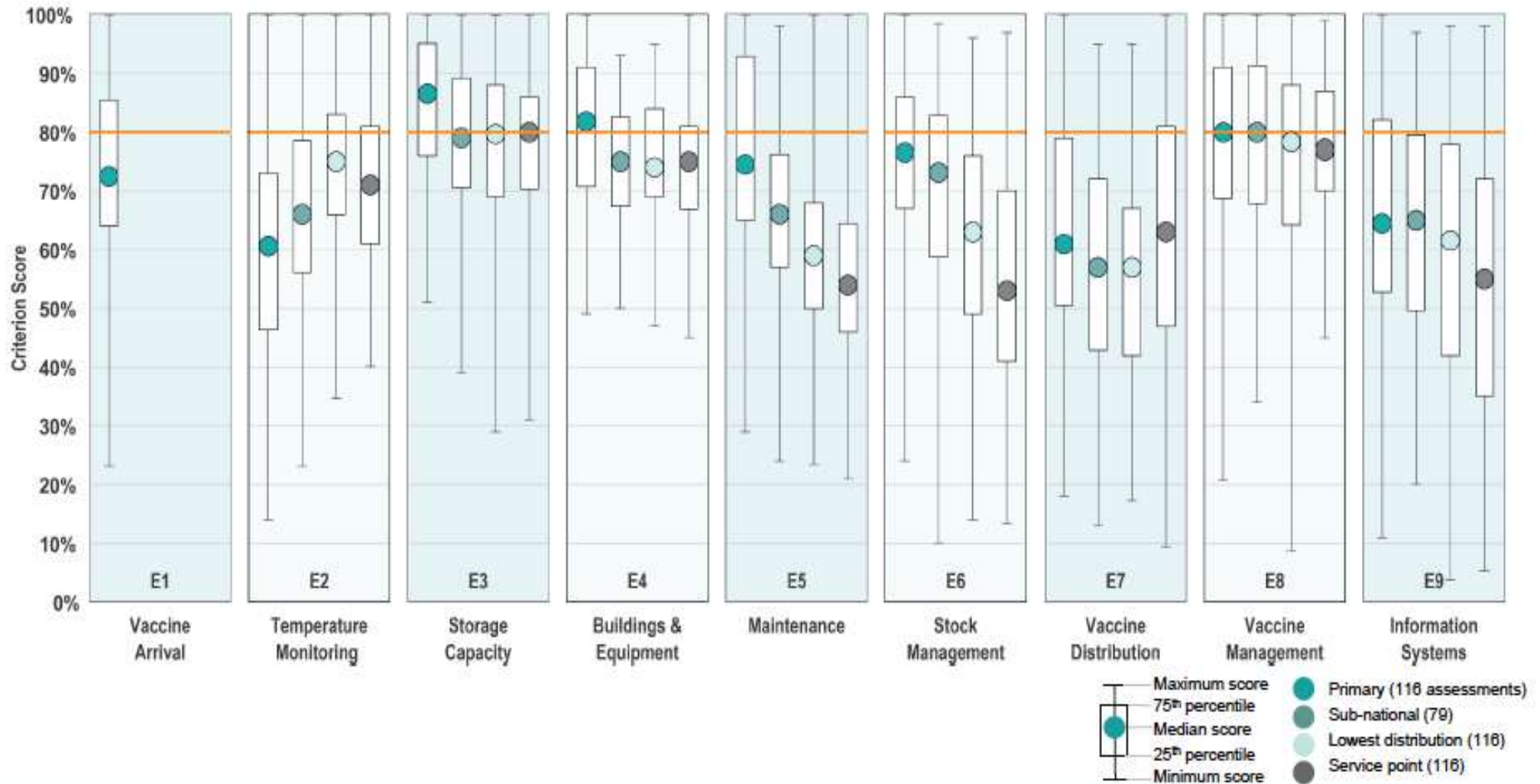


Vaccine supply chain uncertainties for manufacturers

- The opportunities facing emerging manufacturers have to be considered against a significant degree of uncertainty - weak demand forecasting, erratic ordering schedules, configuration and infrastructure of the supply chain, cold chain failure.....
- Added to this are externalities - disease dynamics including outbreaks and epidemics, greater demand for data, environmental factors and tender procurement methods.
- Uncertainties and externalities are confounded by preparedness rarely ranking high on the list of country priorities, with weak domestic resource mobilization, sustained under-investment in preparedness and inability to address the financial burden of outbreak and epidemic response.

154 supply chain assessments in 89 countries pertinent to demand and deployment

Criterion Scores (2009-2016)



Reflection



How can manufacturers intervene?

Image: Incepta, Bangladesh

Traceability

Ability to track vaccines through the supply chain from manufacturer to patient with key information items such as the Global Trade Item Number (GTIN), lot number and expiry date – to improve ordering and inventory control, supply chain management, minimizing stock-outs and safety monitoring including AEFI reporting.

Barcoding is a principal tool used in traceability and will increasingly be demanded from countries implementing digital health systems (e.g. mHealth) providing immediate access to data. Use of GS1 standards adopted by WHO, UNICEF, Gavi.

(Ref: Shenzhen workshop, GVAP2.0 higher quality data, Gavi AI+blockchain)

Traceability – group discussion

Describe two main concerns you have as a manufacturer around tracking your vaccines in your country or in countries where you export your vaccines

Stockpiling (inc. buffer stocks)

Stockpile investments are an integral part of comprehensive disease strategies. Stockpiling can mitigate uncertain demand forecasts and stock-outs and respond to emergencies.

The shift in the global health landscape, with increased pressure from climate change, population increases and mass urbanization, increases the risk of large-scale outbreaks and urban epidemics which would overstretch vaccine supplies and continuously re-define the role and size of vaccine stockpiles (Gavi)

Static stockpiles have the risk of causing potential losses to manufacturers. There is a need for a common view on stockpiling, as well as revisit the remaining shelf life requirements of countries as this limits the flexibility in stockpiling (including buffer stocks).

(Ref: GVAP2.0 responding to health emergencies, CEPI)

Stockpiling – group discussion

Describe two main concerns you have as a manufacturer around stockpiling your vaccines prior to shipment

New packaging and delivery technologies

There is increasing attention to new technologies - blow-fill-seal, intra-dermal delivery devices, microarray patches and sublingual delivery. Apart from staying informed of new technologies and their potential for adoption, DCVMN members should have a voice about which technologies are most appropriate and cost-effective to them.

Gavi, WHO, BMGF, PATH, UNICEF and CHAI have formed an alliance creating a vaccine innovation prioritization strategy (VIPS). The vision is to drive vaccine product innovation to better meet country needs and support immunization coverage and equity goals. The goal is to prioritize innovations in vaccine product attributes to provide greater clarity to manufacturers and partners to make investment decisions.

(Ref: Vaccine Innovation Prioritization Strategy, DCVMN AGM 2019)

Innovations short-listed by VIPS



Microarray patches (MAPs)



Compact pre-filled auto-disable devices (CPADs)



AD sharps-injury protection (SIP) syringes



Solid-dose implants



Dual-chamber delivery devices



Freeze damage resistant liquid formulations



Heat stable/controlled temperature chain (CTC) qualified liquid formulations



Combined Vaccine vial Monitor (VVM) and Threshold Indicator (TI)



Barcodes / Radio Frequency Identification (RFID)

Note: Innovation pictures are just examples of innovations

New packaging and delivery technologies – group discussion

Describe two main concerns you have as a manufacturer around the introduction of new packaging and delivery technologies