Roadmap to Future Vaccines
Market, Manufacturing, and Supply Chains

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Three key points for your attention

1. Reimagining the shape of the global vaccine production network - WHY, WHAT, HOW?

2. Challenges for DCVMN members to prioritize product mix/portfolio of vaccine candidates

3. Smarter ways to investing at risk
Rethinking the “shape” of the global vaccine production network

Maximum flow?
Equity of flow for each market?
Robustness to node(s) put under export control?
Lowest cost per Unit dose of output?
Network time to start?
Broader/longer protection vaccines (e.g., COVID, influenza), operational challenges, and global system for manufacturing and distribution

Figure: schematic illustration of economic and epidemiological considerations for future influenza vaccines, associated with their breadth and duration of protection. Coloured boxes show key factors (discussed further in the text) associated with increasing vaccine performance along the associated axis.

Arinaminpathy N, Saad-Roy CM, Yang Q, Ahmad I, Yadav P, Grenfell B.
DCVMN members and Vx program prioritization

Competing criterion and high uncertainty

- Premature Deaths Averted per Year
- DALYs Averted
- Cases Prevented per Year
- Eradication/Elimination Targets

- Societal Value
- Cost-Effectiveness

- Likelihood of Success
- Experience with Production Platform
- Existing asset base for Production Platform

- Interest by global agencies and philanthropies
- Interest by domestic government

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Flexibility in Manufacturing Assets

Boosting Vaccine Production Needs the Right Degree of Flexibility

Prashant Yadav and Antoine Desir, INSEAD

Source = Desir and Yadav 2021
Smarter application of investment at risk?

Rapid investments in manufacturing capacity require government and institutional funding. What form?

1. Capital grant, concessional loan or equity

2. Working capital facility, seconded staff, other mechanisms for overhead reduction

3. Purchasers agree to pay a time limited premium

4. Advanced purchase agreement, volume guarantee

Comparison of different instruments assuming static production cost-curves (some analysis in Kazaz, Webster, Yadav 2020)

Learning curve effects and dynamic production cost curves?
Three key points for your attention

1. Reimagining the shape of the global vaccine production network - The WHY & WHAT are clear, the HOW needs some more thinking.

2. Prioritizing product mix/portfolio of future vaccine candidates is a significant challenge for DCVMN members.

3. We can develop smarter ways to investing-at-risk (by government and institutional)