Workshop: Medicines, Vaccines and PPE

DHS COE at Rutger's University: CCICADA

August 27, 2020

The Opportunity

Summary of opportunity

Vaccine Supply Chain

- Vaccines are difficult to develop and manufacture, most have long lead times and complex supply chains
- Certain supplies are common to vaccines and new demand strains established supply chains
- Data related to COVID-19 is dynamic and the landscape changes rapidly
- Vaccines are generally capacity intensive, which requires time, money and trade-offs

Availability & Distribution

- Public Health policy could determine whether this vaccine is mandatory; what of future pandemics?
- Because 7 billion doses of any vaccines is not likely to be available immediately, countries will need to prioritize who gets the first vaccines
- Distribution could be challenging as it may initially require cold chain

Opportunities for Improvement

- Pooling resources will be the key to quick responses in the future
- Establishing the manufacturing capabilities and inventory reserved of key supplies will give us a head start
- Establishing clear lines of communication, resource availability and decision making is key to quick response time
- Leveraging established knowledge and vaccine platforms is valuable

Streamlined decision making and execution: Leveraging digital tools and agile decision making, information will flow more quickly, leading to faster execution with less waste

Current state – Many companies are engaged in independent work that are in competition, leading to potential supply chain interruptions later

Legend:
- R&D Development
- Manufacturing & Supply Chain
- Component Suppliers
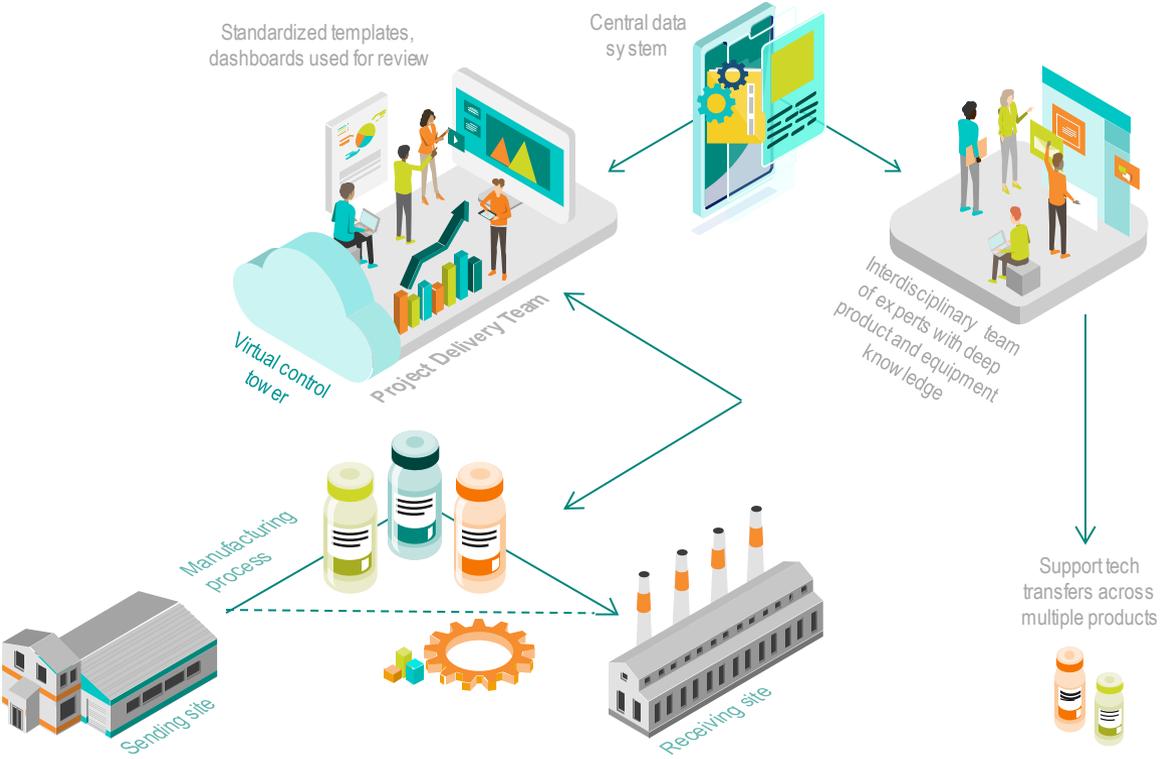- Government
- Distribution Channels

Once R&D develops a viable candidate, process must be scaled up and manufactured. **Typically takes ~10 years**

Once scaled, production begins, lead times are typically **6 months**.

Distribution is more complex if the product requires cold storage.

Cost (time and money) to produce to build capacity is substantial.

Future state – Central team and agile pool of experts support vaccine development, manufacture and distribution

Team of **empowered teams**; flexible **team** of technical experts pooled enabling "as needed deployment"

Automated dashboards provide on-demand progress updates shared across the entire chain

Digital thread spanning stores of deep product knowledge enabling **proactive, risk-based decision-making** to accelerate timelines

Leverage best practices from cross-project experience (e.g., optimizing number of batches)