

## **Knowledge Gap:**

### ➤ ***Technical:***

- The stages of mass production of vaccines
- Alternative methods for the culture stage of vaccine production
- Process design to meet Current Good Manufacture Practices (CGMP)
- Implementation of cold chain fresh-keeping technology
- Safety requirements for vaccine producers not to be infected by the virus

### ➤ ***Development Prospects:***

- Scope of application of vaccines
- Comparative advantages of manufacturers
- Capital input and expected cost of initial production
- The possibility of achieving global large-scale production in a year and a half

## **The Key Players of COVID Vaccine:**

### ➤ ***Manufacturing:***

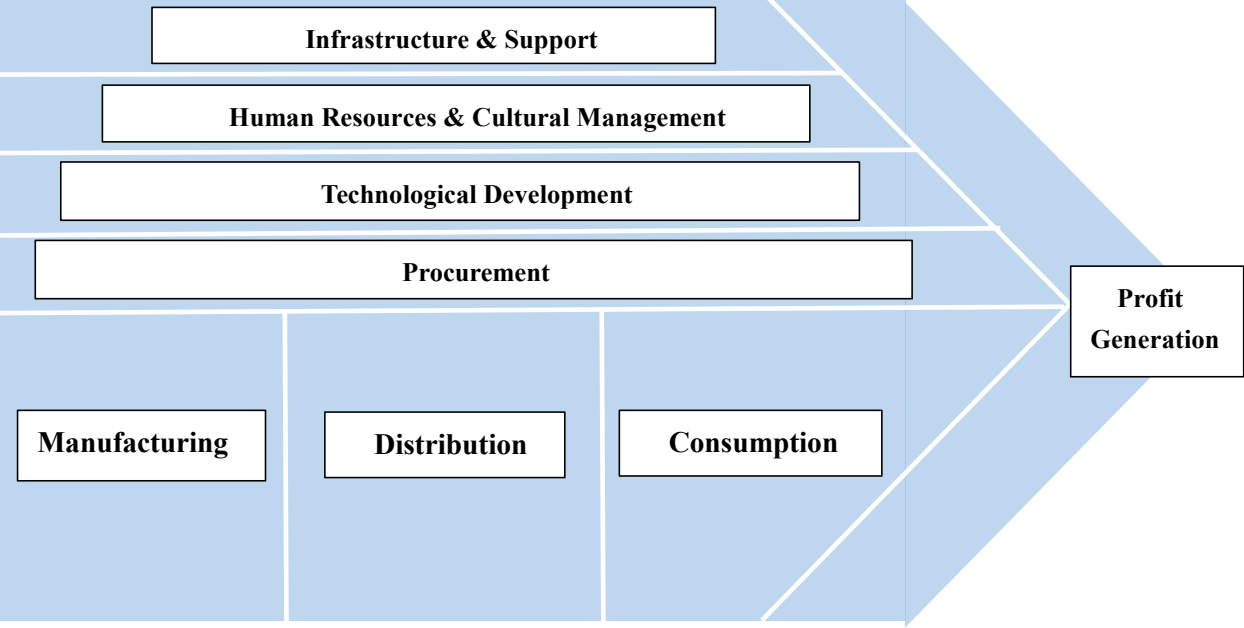
- Procurement personnel are responsible for purchasing important raw materials such as culture medium and syringes for vaccine production.
- The production staff works in shifts to produce the mRNA vaccine under the low pressure, then package the vaccine to suppliers based on the efficiency of the machinery.
- Before packaging, the staff should mark the storage conditions, production date and applicable population of the vaccine in batches.

### ➤ ***Distribution:***

- Logistics department personnel are responsible for raw material warehouse management, workshop scheduling, connection with suppliers.

### ➤ ***Consumption:***

- The sales team is committed to finding hospitals that meet health and medical conditions as potential customers to provide vaccines.
- Pricing team members establish their own market prices by investigating market prices and receiving price from manufacturers.



**Value Chain Diagram**