

# How advanced supply chain technology can help streamline Covid-19 vaccine rollout

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While the rollout of the Covid-19 vaccine has signified the first signs of light at the end of the tunnel, the reality is that this public health crisis is still far from over. More than 100 million people worldwide have been vaccinated thus far, but several new variants of the virus have emerged in South Africa, Brazil and the United Kingdom that are more contagious, more lethal, and more resistant to the original Covid-19 vaccine portfolios.



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In turn, enhancing the speed and efficiency of the vaccine rollout is now even more essential to the global health community's fight to curb the pandemic. However, it's much easier said than done. A combination of logistics challenges, supply chain gaps, inconsistent access, and a lack of visibility and data at the administration level has significantly slowed the pace of the rollout everywhere from the United States and Europe to underdeveloped countries.

Advanced technology is an effective tool for overcoming the Covid-19 vaccine rollout's most complex obstacles. By digitising fundamental aspects of vaccine distribution and administration, we can create a streamlined system of processes that unifies the rollout from the first to last mile. The integration of real-time track and trace technology, handheld mobile smart devices and advanced analytics solutions into the Covid-19 vaccine rollout is our best shot to enhance the global vaccination effort and combat new variants with herd immunity.

## Critical supply chain visibility

The Covid-19 vaccine supply chain includes several hand-offs between different distributors and logistics providers. Each hand-off elevates the risk of vaccine damage or mishandling delays. Advanced technology can generate end-to-end supply chain visibility that helps alleviate the risk. By knowing the location and status of vaccine shipments in real-time, supply chain operators have the visibility needed for maintaining operational efficiency and addressing issues that could cause future disruptions.

The use of RFID mobile track and trace devices provide detailed monitoring of vaccine shipments from the manufacturing plants to administration sites. The (Internet of Things) IoT devices, which are attached to each vaccine container during shipment, collect extensive location data and compile it into simplified reports and graphs. That information is then immediately uploaded to the cloud for employees to reference.

With real-time vial level traceability, distribution and logistics providers can:

- Verify when vaccine shipments have made it to each checkpoint and predefined destination
- Improve cross-team collaboration between multiple transportation and logistics companies
- Leverage feedback loops to identify the cause of major distribution inefficiencies that are restraining the rollout
- Automate tasks to focus on high-level responsibilities and foster a higher standard of efficiency

Above all, the advanced track and trace capabilities will help streamline vaccine distribution to point of care facilities -- thus increasing vaccination rates across communities, countries and regions.

### **Data-driven point of care facilities**

Once vaccines have arrived at their point of care facilities, a new set of challenges ensue that pose significant threats to the Covid-19 vaccine rollout's progress. In a rollout of this magnitude, point of care facilities need to collect comprehensive vaccination data on:

- Individual patient records
- Daily vaccination numbers
- First dose administration dates and second-dose follow-ups
- Adverse reactions to the vaccine
- Vaccine supply levels
- Temperature maintenance compliance

The data must be quickly documented and reported to public health agencies to ensure effective record keeping, equal access to the vaccine and patient safety. However, point of care facilities vary in size and resources. From small, localised administration sites to repurposed sports stadiums and arenas, many of these facilities lack the technological bandwidth for meticulous data collection.

This is where healthcare-specific mobile computers, tablets and printers can bridge gaps and streamline quantitative processes. Just imagine healthcare employees at an outdoor vaccine administration site, using a passive RFID handheld computer/tablet to input a recipient's background data into itemised reports. After collecting the information, they print a plastic barcode label that can send the recipient's vaccination records to the cloud with a simple scan. By speeding up the intake process, the technology is empowering employees to increase the number of people they vaccinate each day.

The mobile computers, tablets and printers can also be leveraged to input vaccine data on daily doses

administered, supply levels and temperature maintenance protocols. The devices allow employees to upload the metrics to a single-platform analytics system that automates data analysis. Through artificial intelligence, the system can produce data-driven insights on vaccination rates, second-dose scheduling requirements, future supply forecasts and temperature maintenance protocols. In turn, point of care facilities can act on the data to maximize the productivity, safety and sustainability of their vaccine administration strategy.

The Covid-19 vaccine rollout presents the greatest supply chain challenge of our lifetime, but digital innovation offers simplified solutions for some of its most complex challenges. By employing advanced track and trace technology, mobile smart devices and advanced analytics, we can enhance distribution efficiency, improve patient safety and expand vaccine access to help put an end to this unprecedented public health crisis.

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