

Digital Infrastructure for Verifiable Open Credentialing

DIVOC

SHARED VISION

Enable countries to digitally orchestrate large scale vaccination and certification programs using open source digital infrastructure as a public good.



UNDERSTANDING DIVOC

WHAT IS DIVOC?

DIVOC is a flexible & extendable software that helps countries to digitally orchestrate large scale vaccination & certification using open source technologies and a scalable, data driven architecture

Digital Infrastructure for Verifiable Open Credentialing



VACCINE TESTING, APPROVALS, SUPPLY MANAGEMENT



TRAINING,
eLEARNING
WORKFORCE MOBILIZATION



ROLLOUT, CERTIFICATE
ISSUANCE, FEEDBACK
MONITORING



Platform Details

Guiding Principles

- Versatile
- Allows for plug & play
- Trustworthy
- Citizen-centric approach

Architecture Principles

- Micro-services & API based
- Interoperable
- Scalable
- Flexible & Configurable
- Observable
- Resilient
- Privacy & Security by design
- Open Standards
- Trustable
- Internationalizable

Technologies

- Front end: AngularJS, HTML5, Go
- Framework: Spring Boot
- DB: Postgres
- Components: Opensaber, Apache Kafka, Radis
- Identity and Access Management: KeyClock
- Deployment: Docker



DIVOC has 3 core modules

each of which can be used independently or together and integrated with existing systems

Certificate Module

Digital credential for the vaccinated population



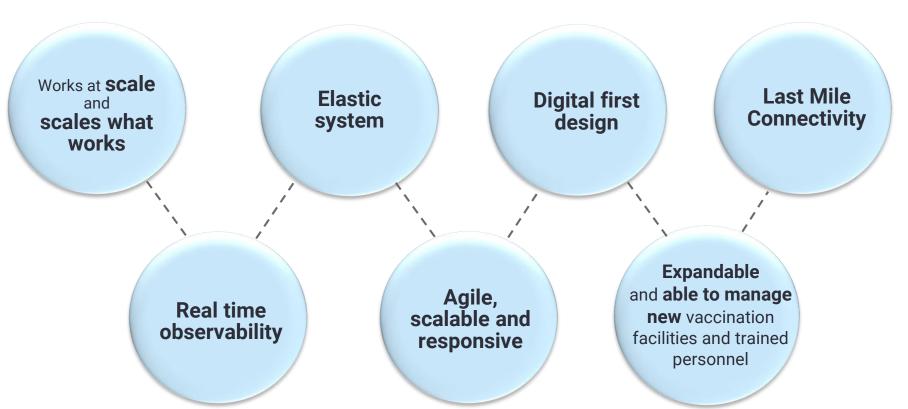
Digital feedback collection to aid AEFI reporting

Orchestration Module

Registration functions and management of program, vaccine, facility, vaccinator and preenrolment registries

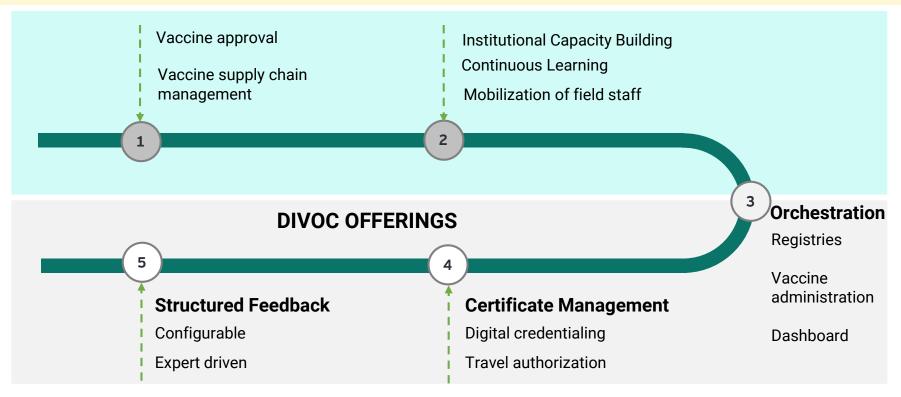
WHY DIVOC?

WHAT DO COUNTRIES NEED FOR LARGE SCALE VACCINATION ROLL OUT?



DIVOC'S ROLE IN COUNTRY ROLL OUT

WHAT DO COUNTRIES HAVE AND WHAT MORE IS NEEDED?*



*Countries need underlying IT infrastructure to support the vaccination roll out





Digital credential for the vaccinated population



Digital feedback collection to aid AEFI reporting



Registration functions and management of program, vaccine, facility, vaccinator registries

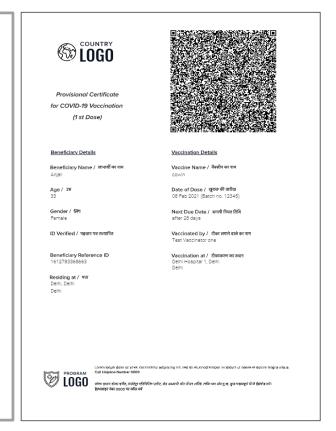


CERTIFICATE MODULE



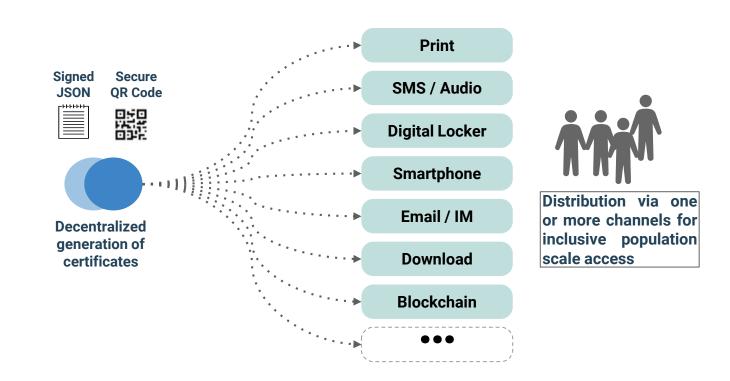
FEATURES

- Conforming to WHO/IHR guidelines* based on W3C verifiable credential* specifications
- Authenticity verifiable via digitally signed QR code
- Available digitally on smartphone with QR code
- Printable for non-smartphone users
- Multilingual templates (for data and layout)
- Ability for users to download/print after vaccination either at facility or from home in self/assisted modes
- Easy integration with health and certificate lockers,
 as well as with immunization e-registries and EHR systems



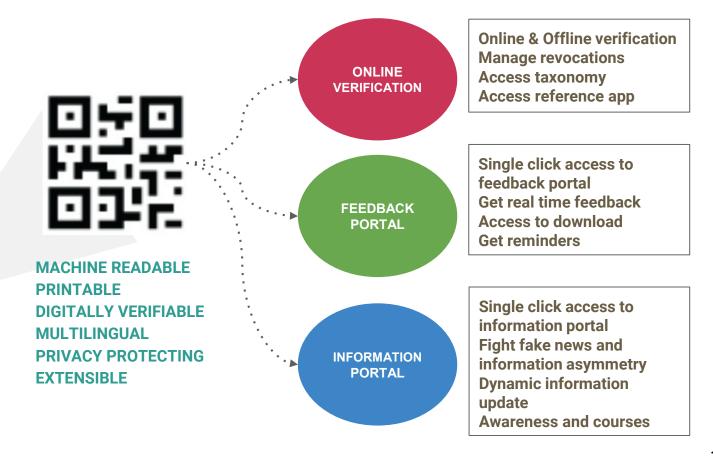


ONCE THE CERTIFICATE IS ISSUED, MULTI-CHANNEL DISTRIBUTION AND PRINT SCHEMES SHOULD WORK TO ENSURE COUNTRIES AND USERS HAVE A CHOICE

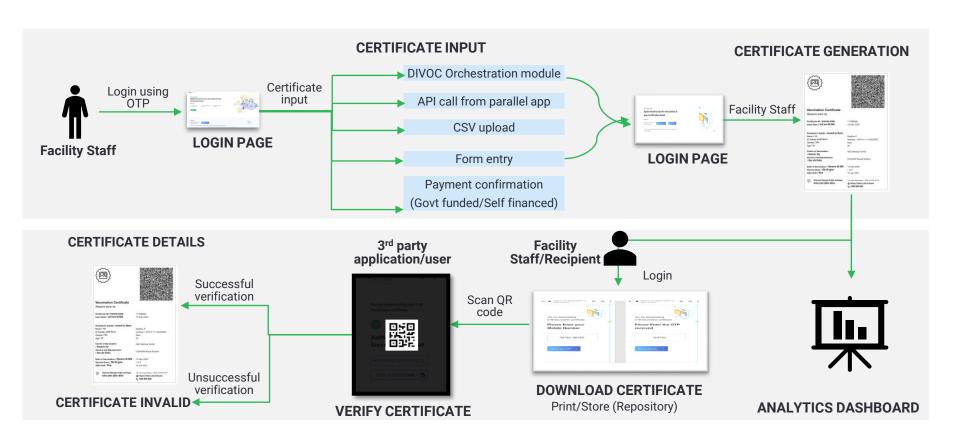




ENERGIZED VACCINATION CERTIFICATE



User Journey DIVOC: Certificate Module







Digital credential for the vaccinated population



Digital feedback collection to aid AEFI reporting



Registration functions and management of program, vaccine, facility, vaccinator registries



FEEDBACK MODULE



FEATURES

Structured feedback

Configurable and expert driven

Various types

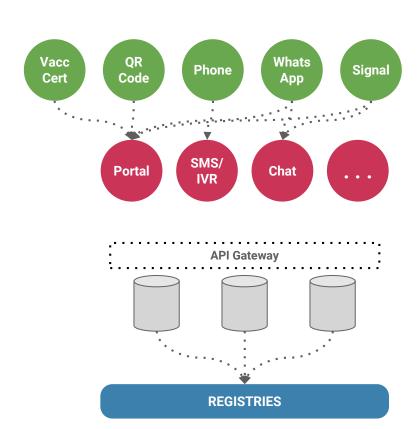
- Facility rating & feedback
- Vaccinator rating & feedback
- Vaccination response feedback

Multi channel/lingual

- Public portal, inbound SMS, IVR, WhatsApp, other apps via API
- Multiple languages

Self service and assisted modes

Can be integrated with AEFI systems and processes





User Journey DIVOC: Feedback Module Scan QR code Portal Login with certificate ID OTP based verification **VACCINATION VACCINATION VACCINATION** RECIPIENT **CERTIFICATION FACILITY** FEEDBACK PORTAL Vaccination response Vaccinator feedback Facility feedback feedback (AEFI)





Digital credential for the vaccinated population



Digital feedback collection to aid AEFI reporting



Registration functions and management of program, vaccine, facility, vaccinator registries

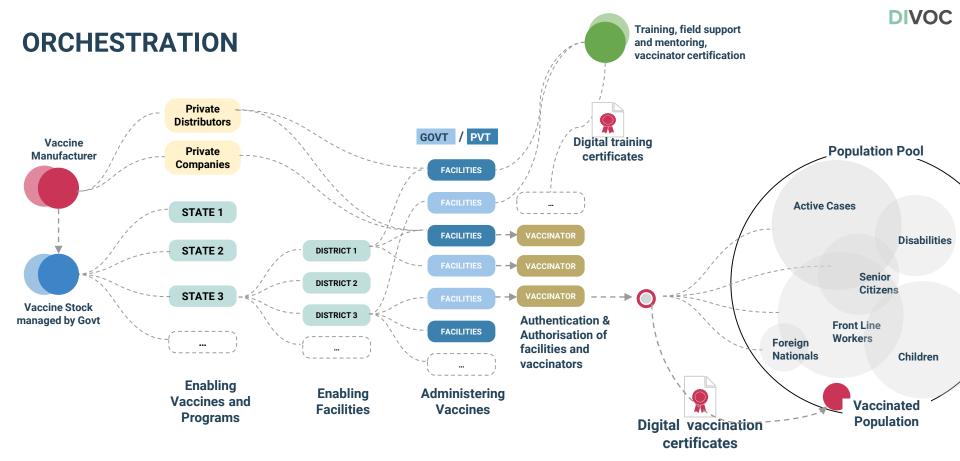


ORCHESTRATION MODULE

REGISTRIES

DIVOC can create registries or configure the existing ones

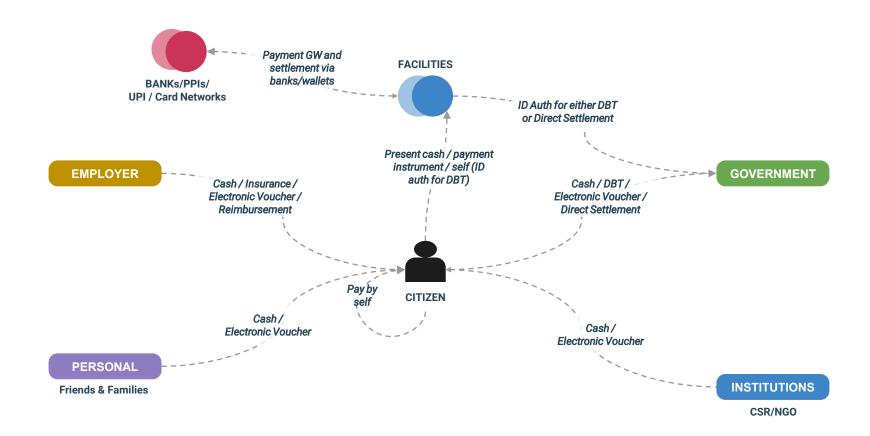
PROGRAM REGISTRY	VACCINE REGISTRY	FACILITY REGISTRY	VACCINATOR REGISTRY	PRE-ENROLMENT REGISTRY
Vaccination programs	Approved vaccines	Approved facilities	Trained vaccinators	Identified population
Active status	Active status	Location	Active status	National ID
Allowed vaccines	Vaccination schedule	Active status	Training certificate	Secondary identifiers
Start and End dates	Vaccination method	Vaccination daily rate	Associated facilities	



A platform to orchestrate the complexity within an ecosystem of diverse players to administer a vaccine program across the country successfully.

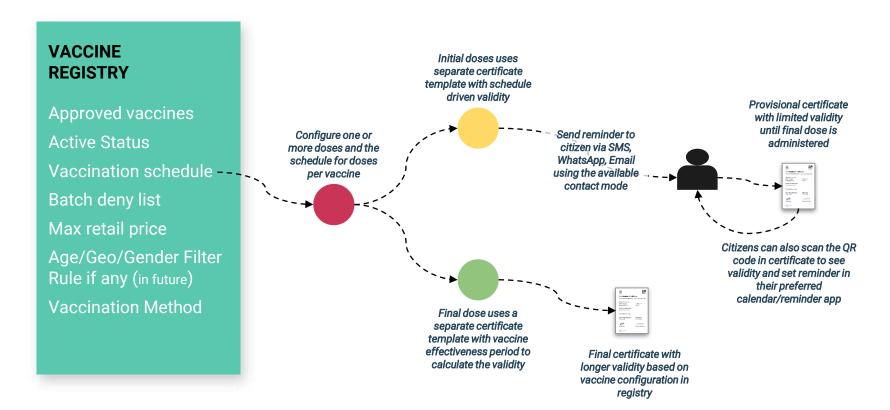


LEVERAGING MULTIPLE PAYMENT MECHANISMS



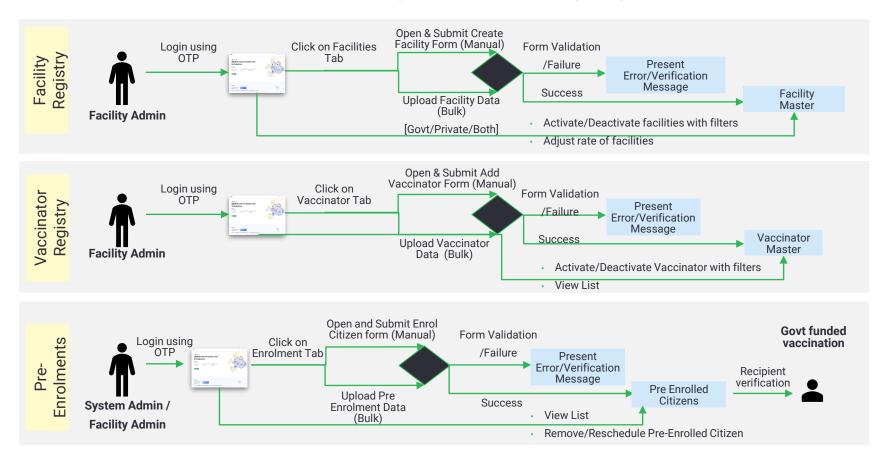


HANDLING MULTIPLE DOSES AND REMINDERS



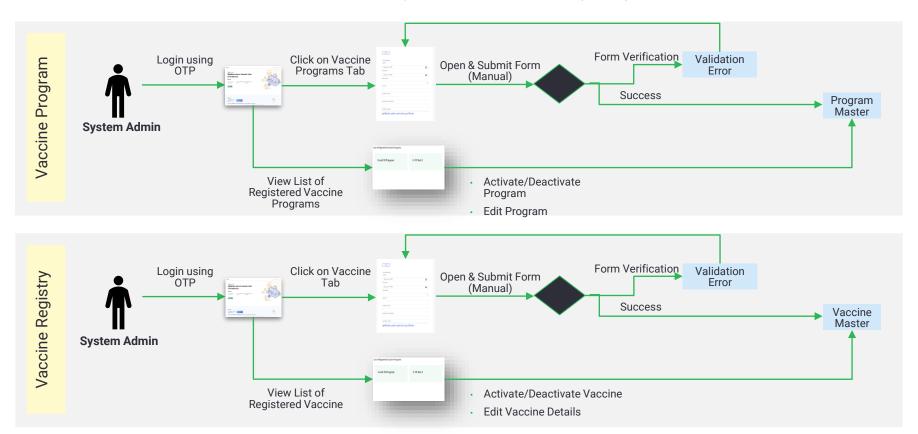


USER JOURNEY: Admin – Management Portal (1/2)





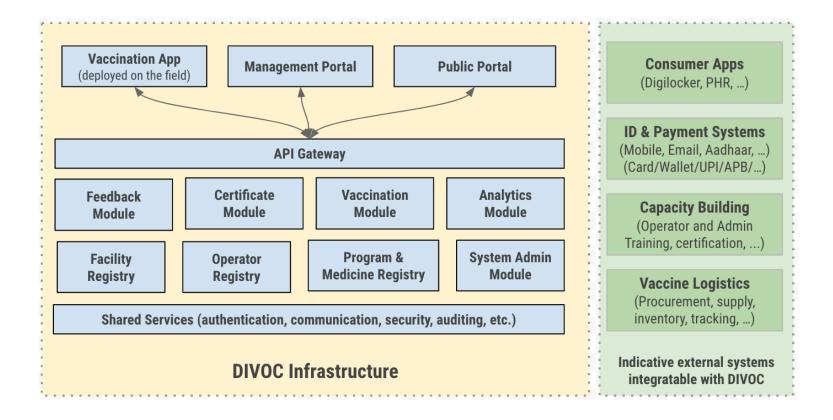
USER JOURNEY: Admin – Management Portal (1/2)



SYSTEM DETAILS

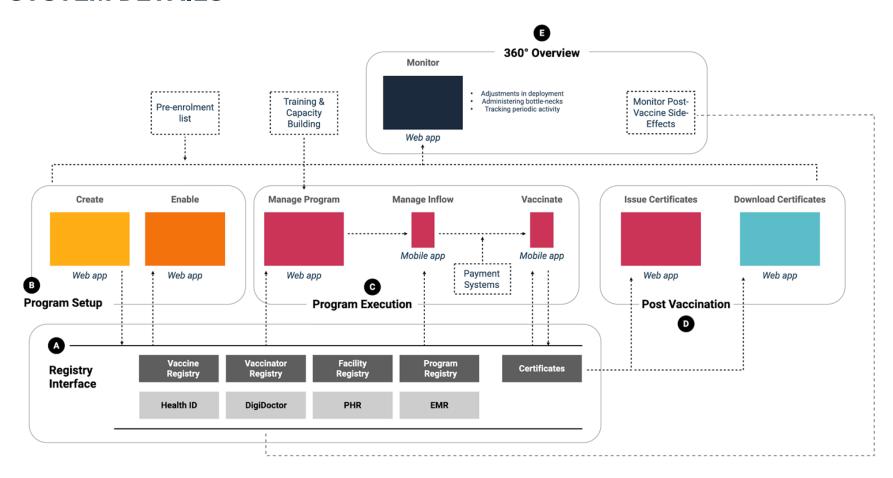


HIGH LEVEL ARCHITECTURE





SYSTEM DETAILS





REGISTRY INTERFACE

Registry control parameters

- Facility vaccination rate
- Facility enablements
- Health worker authorisation

Interacting with the DIVOC platform in 3 ways -

Using DIVOC Frontend interface

Individuals /
Institutions or Facilities
can use the web
application to add
relevant details about
the vaccine, vaccine
administrator and the
participating facility.

Using Existing Registries

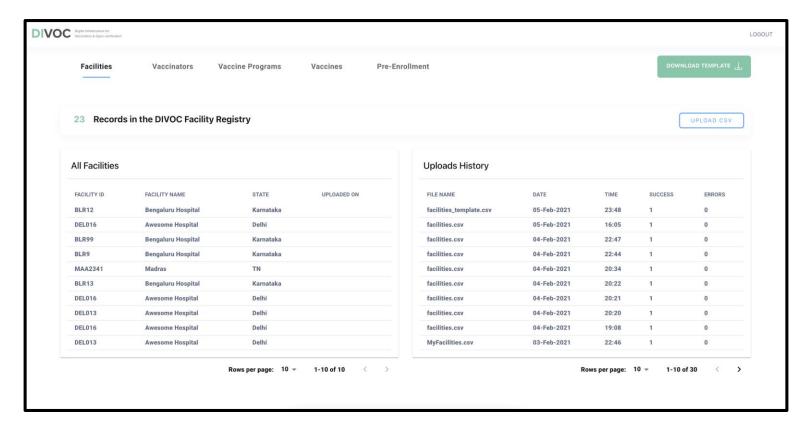
Seamless integration can be achieved using the DIVOC's open APIs.

Backend uploads by System Admin

Data from MS Excel can be used for bulkupload of information into the registry.



REGISTRY INTERFACE





PROGRAM SETUP

Part 1

Vaccination Program Setup

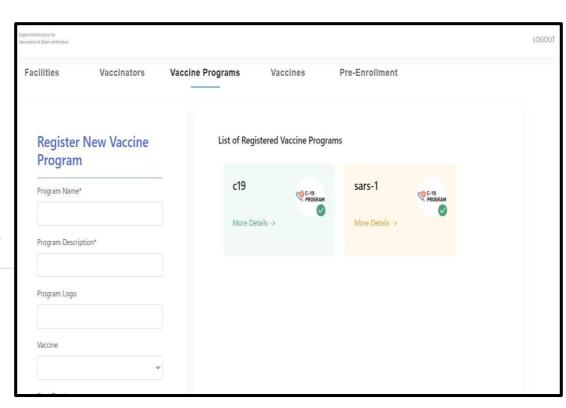
- Approved vaccines & medicines
- Vaccination schedule
- · Vaccination Method
- · Program Description
- · Start & End dates
- Effective until
- Price

Vaccination program setup can be done by the Ministry of Health & Welfare using the DIVOC front-end interface

Part 2

Execution Plan Setup

- Enabling approved facilities
- Enabling approved administrators
- Enabling zones for program deployment
- Vaccine stock allocations



Execution plan setup can be done by the Central / State / District health officials



PROGRAM EXECUTION

Part 1

Facility Admin Module

- · Add / authenticate vaccinators
- · Manage and track all on-going vaccination programs at the facility
- · Print digital receipts / certificates
- Communication interface with the central/state/district health offices
- · Generate reports for internal audits and analytics

This web-application is used by the facility manager to manage and track the overall program at that facility.

Part 2

Facility Vaccination Module

- · Authenticate the inflow of recipients
- Manage the daily vaccination workloads
- · Verify recipient and create digital certificates

Manage Program

Used by the facility admin for managing the program at the facility

Manage Inflow

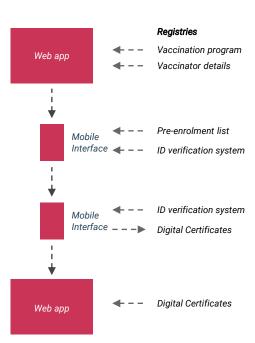
Used by the facility staff to add recipient details / authenticate pre-enrolled list of recipients

Vaccinate

Used by the vaccinators (Doctors/Nurses) to authenticate and issue digital certificates

Issue Certificates

Used by the facility staff to print receipts/certificates post vaccination



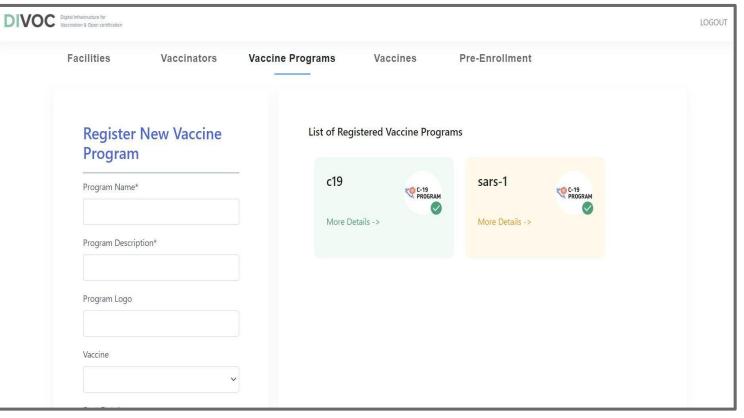
This will be used by the health worker while administering the vaccine.



PROGRAM EXECUTION

Manage Program

Used by the facility admin for managing the program at the facility

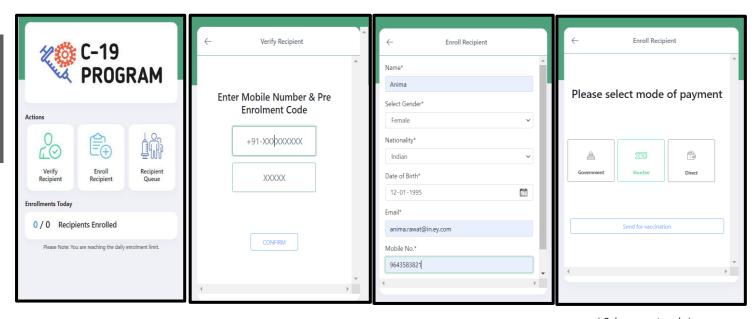




VACCINATION FLOW

Manage Inflow

Used by the facility staff to add recipient details / authenticate pre-enrolled list of recipients



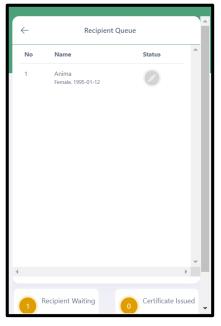
* Only payment mode is captured. The actual payment transactions would happen on the prevalent digital payment systems present in a country.

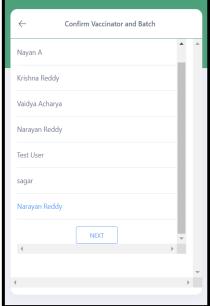


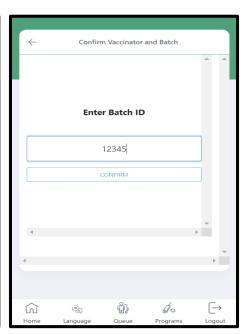
VACCINATION FLOW

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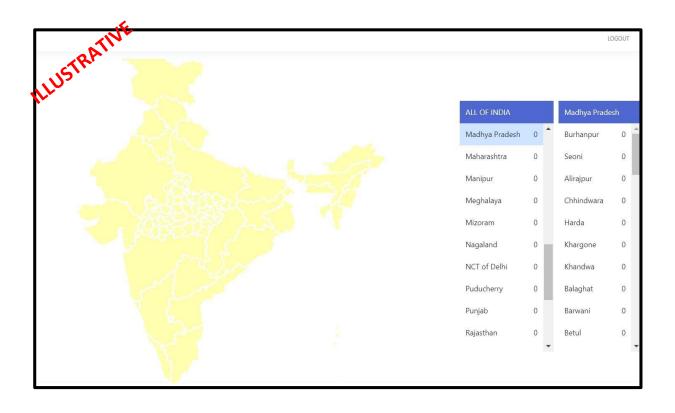
DIVOC

REAL TIME DASHBOARDS USING ANONYMIZED TELEMETRY



DIVOC

REAL TIME DASHBOARDS USING ANONYMIZED TELEMETRY



IN SUMMARY

Ability to vaccinate and certify the entire population at speed and scale in a controlled manner.

To manage the entire vaccination process by **leveraging existing ecosystems** and source of funds in a unified manner

To **control and manage** the approved medicine, its supply, facilities, operators, geographies of operation and the daily vaccination rate as per the supply of vaccines and the country's priorities.

To facilitate the above using a **digital backbone** in a seamless, efficient, auditable and a trustable manner, keeping choice, privacy and security in mind.

Issue a portable digitally verifiable certificate to citizens so that they can get back to work.

Obtain operational and post vaccination feedback in self-service and assisted modes

DIVOC

A fully open source digital public good for any country to adopt From the team who has experience in building population scale platforms

Digital Orchestration

Digital Certification

Digital Feedback

Adopters can choose any of the above modules or all together, integrate with existing systems, extend it, and use it freely.

DIVOC Documentation: <u>Understand DIVOC - DIVOC (egov.org.in)</u>
Project Repository: <u>GitHub - egovernments/DIVOC</u>

THANK YOU