# From a small scale to nationwide application: National Immunization Information System (NIIS) in Vietnam

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Dr. Dang Thi Thanh Huyen - Vice Head, NEPI Office National Institute of Hygiene and Epidemiology, Vietnam
Mr. Dao Dinh Sang – Program Officer, PATH, Vietnam
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# The faces behind the webinar….

Dr. Dang Thi Thanh Huyen - Vice Head, NEPI Office National Institute of Hygiene and Epidemiology, Vietnam

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Mr. Dao Dinh Sang – Program Officer, PATH, Vietnam

Ms. Maya Rivera – Communications Officer, PATH, Vietnam

# Agenda:

1. **Presentation- 15 min**
   1. **Introducing IDEAL-Vietnam**
   2. **History of NIIS/Scale-up**
   3. **Facilitators/Barriers/Lessons learned**
   4. **Next steps**

2. **Interview with National Expanded Program on Immunization and PATH IDEAL colleagues – 15 min**

3. **Discussion/Q&A – 15 min**

# National Expanded Program on Immunization in Vietnam

- Annual birth cohort : ~1.7 million.
- Most vaccines are given at commune health centers on monthly immunization days (weekly in some provinces) except for the Hepatitis B birth dose.
- There are geographic inequalities, with lower coverage rates in hard-to-reach areas.
- Before June 2017, immunization information systems were primarily paper-based systems, with some computer-based systems for reporting aggregated data.

PATH

# EPI structure in Vietnam
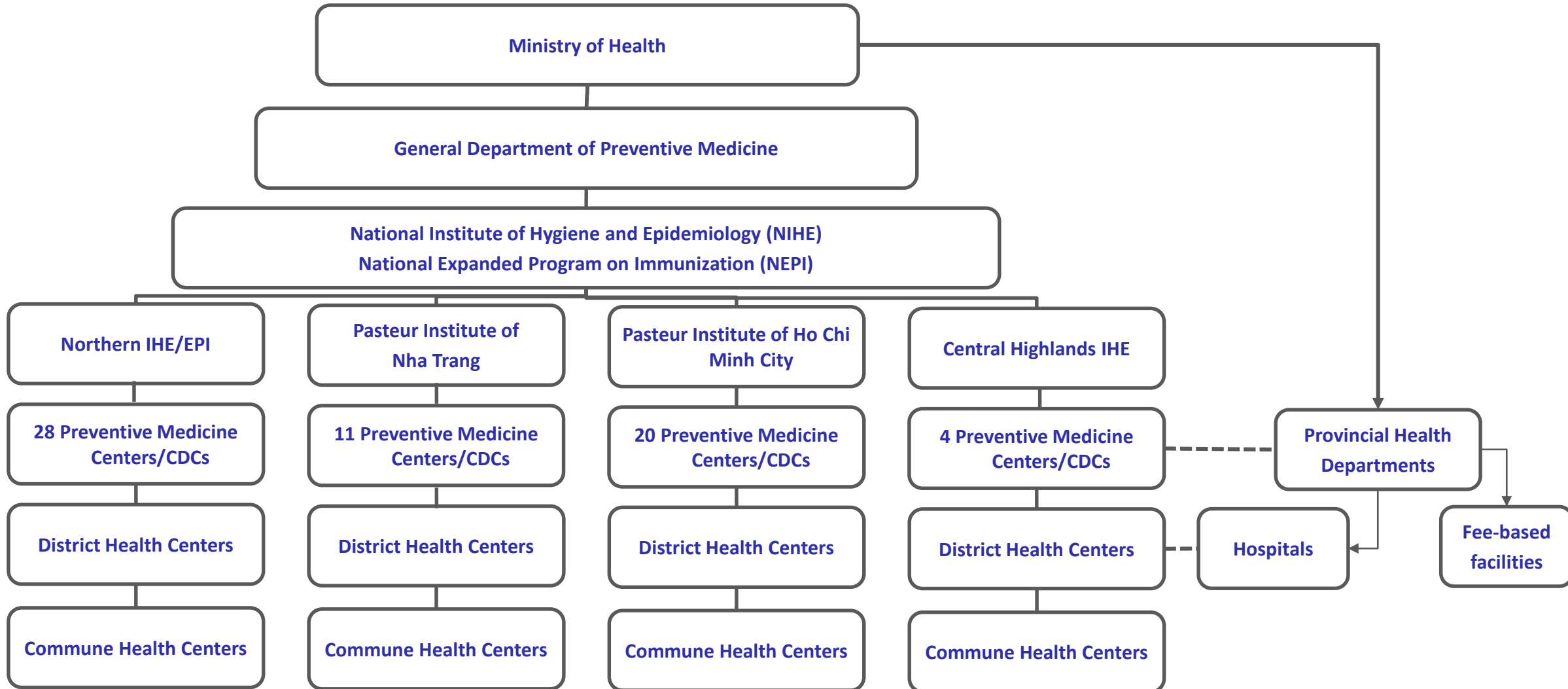
# From paper-based records to a national digital database: ImmReg and the National Immunization Information System (NIIS)

# From ImmReg and VaxTrak to the National Immunization Information System

**Optimize** project developed **three** separate systems:
**1. Vaxtrak:** Track vaccine transactions and aggregating immunization reports
**2. ImmReg:** Track immunization events of children under 1 year.
**3. Fee-based report**

Vaxtrak was rewritten to web-based

**- Integrate** Vaxtrak and ImmReg as one comprehensive system for vaccine and immunization (VIS)
- Add new modules for pregnant women

- Working with GDPM, NEPI, Viettel to scale up to **National Immunization Information System** for both Vaxtrak and ImmReg.
-The NIIS was officially **launched nationwide** in 2017

**Transition to paperless immunization records**

| 2009-2011 | 01/2012 | 12/2012 | 01/2013 | 03/2014 | 12/2015 | 2016/2017 | 2018-2020 |

- **Vaxtrak**: Pilot in 3 provinces + 13 districts in Phu Tho
- **ImmReg**: Pilot in 01 district (17 communes) in Ben Tre

- Vaxtrak was scaled up nationwide (63 provinces).
- 7 provinces implemented to district level by themselves

- Scale up ImmReg module to 164 communes in 9 district of Ben Tre
- **GSK & Save the Children award**

- TOT training for provincial, regional officials and district health workers

Support 2 provinces Ha Noi and Son La transition to paperless immunization records

PATH

# Stages of Scale-up

**Pilot (Optimize):**
a pilot collaboration between NEPI and PATH, focusing firstly at district level and assessing user needs (VaxTrak/ImmReg). Information gathered from the Optmize project helped to identify a larger gap in Vietnam's immunization registry

**Integration and Scale-up:**
NEPI and PATH expanded the ImmReg pilot to the entire province of Ben Tre and absorbed the VaxTrak system

**National Scale-up and government ownership:**
The MoH requested the two systems be integrated into government designed NIIS. PATH was asked to continue to support the software. The NIIS was designed for national scale, and the TWG was formed

# System functions: Immunization Registry Module



Commune Health Center

Barcode Scan

SMS Reminder

Immunization Tracker & Planning

Dashboard and reports

E-Immunization Card

Under development

Fee-based Immunization Facility

Hospital
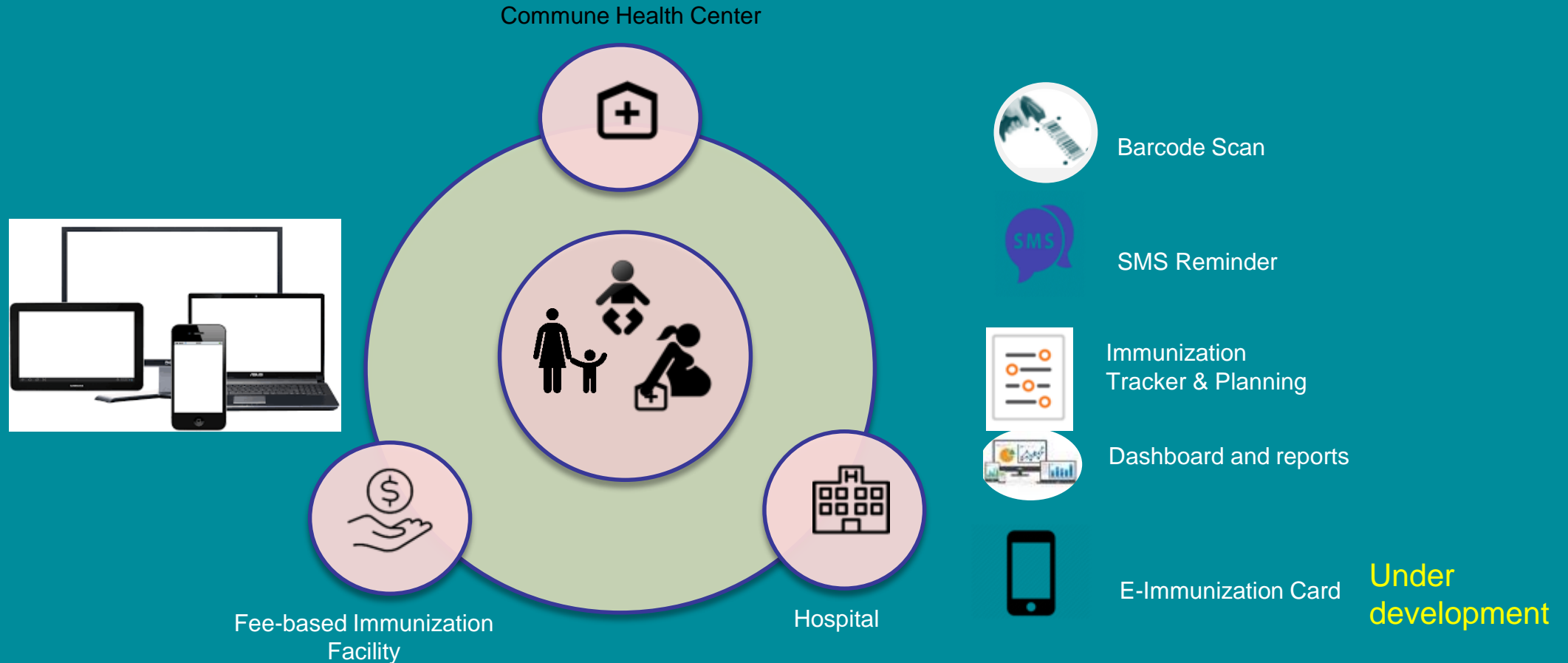
# Introducing Digital immunization information systems: Exchange And Learning from Vietnam

# IDEAL-Vietnam

**Goal: To explore and disseminate evidence and lessons learned from Vietnam's implementation of the NIIS to support successful implementation of EIRs in other countries.**

- By the end of the project, we will have **published and disseminated actionable lessons learned from the Vietnam context** to contribute to the growing body of guidance and evidence emerging, by contributing knowledge gained from a national scale established system in a middle-income country. This will include **implementation guidelines** based on the Vietnam experience, as well **as academic publications** that feature key analyses and collected learnings to inform governments, as well as normative and donor agencies.

- We will encourage awareness and adoption of this information by **publishing our work in a variety of media sources and peer-reviewed publications**, and **diffuse our learnings at conferences and in community forums.**

- We aim to create awareness and understanding of Vietnam's experience to **inform, influence, and accelerate the successful implementation of similar tools at a global scale**.
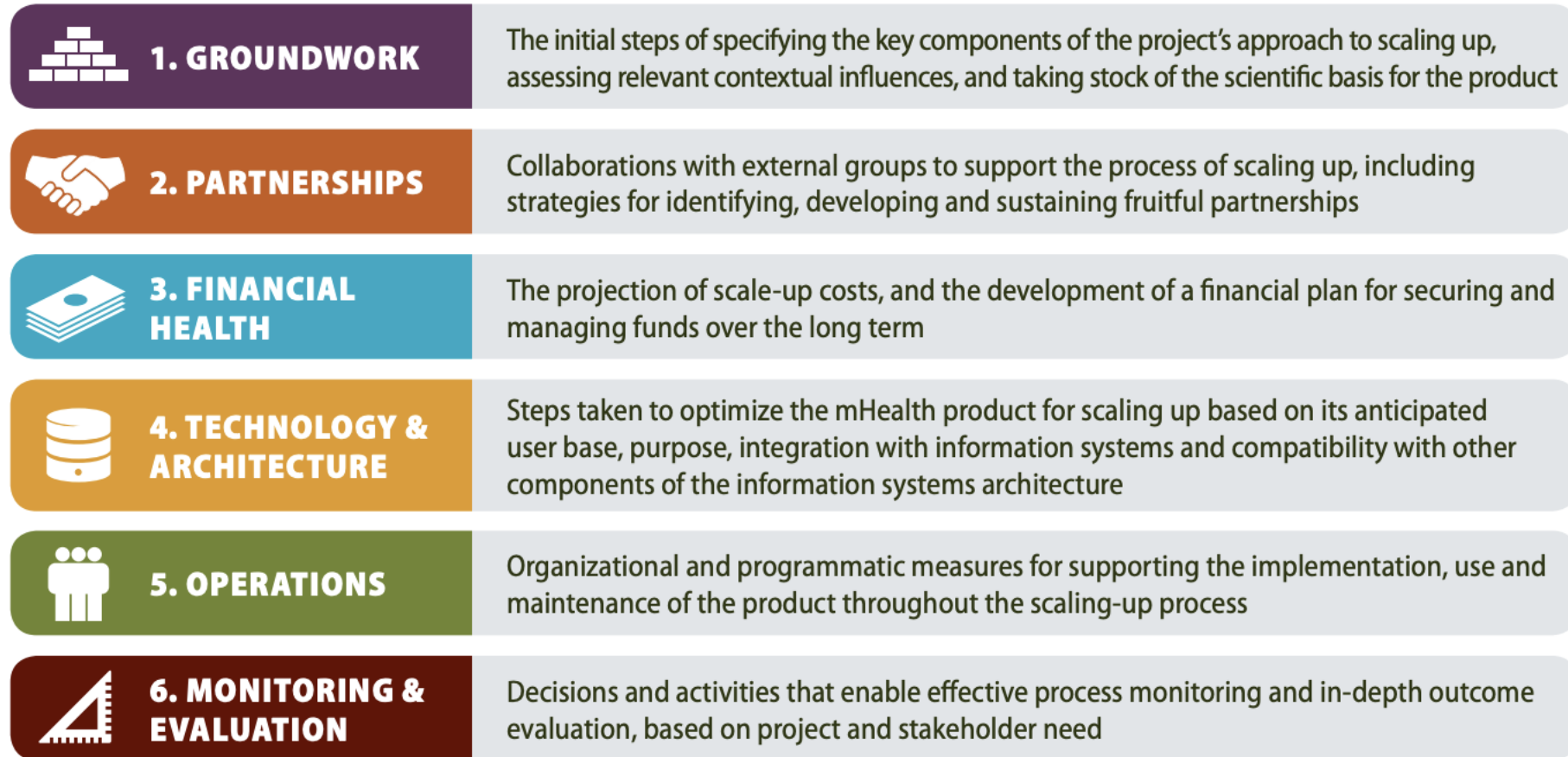
**We also aim to use this project to help the MOH improve the uptake and effective use of the NIIS.**
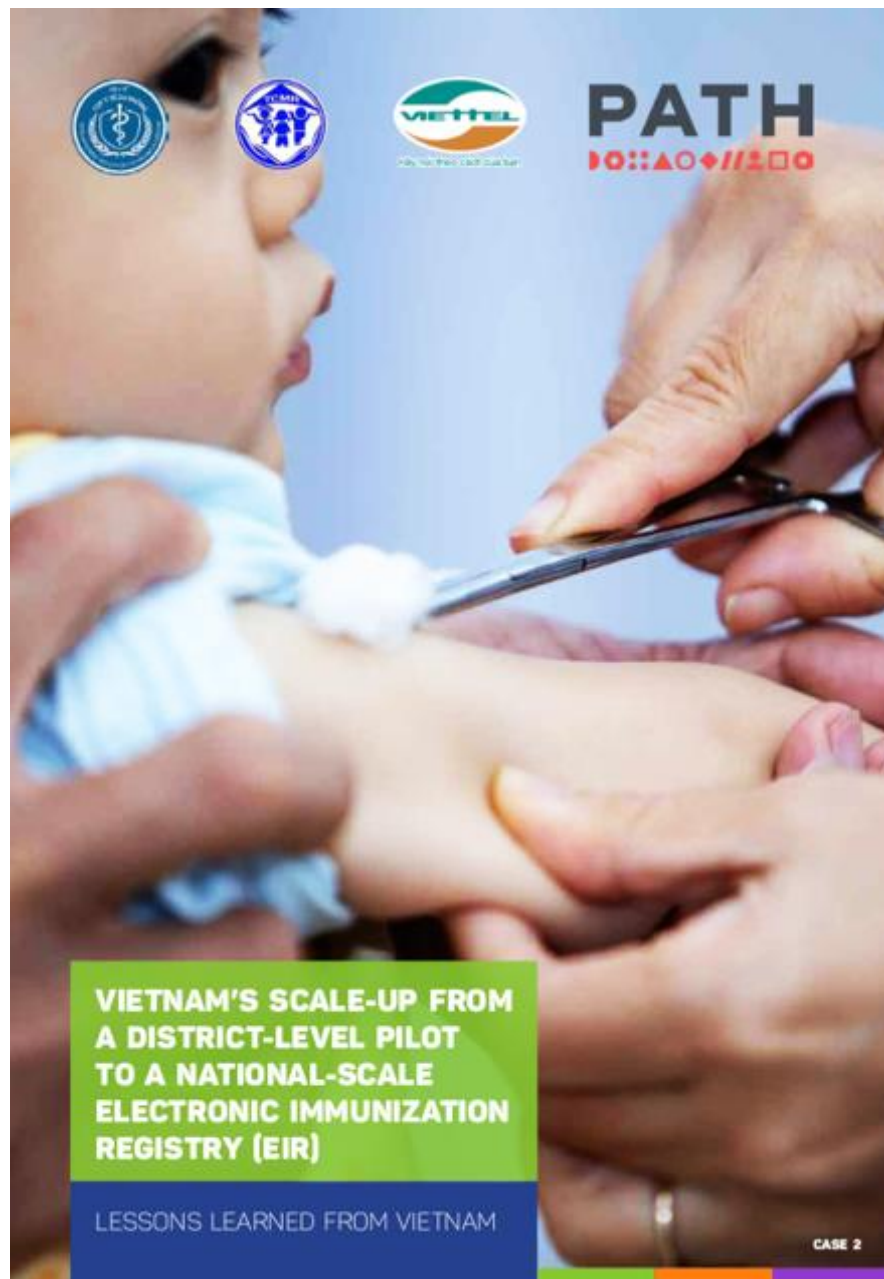
# CASE STUDY #2:

**Vietnam's Scale-Up from a District-Level Pilot to a National-Scale Electronic Immunization Registry**

# mHealth Assessment and Planning for Scale (MAPS) toolkit:*

| | |
|---|---|
| **1. GROUNDWORK** | The initial steps of specifying the key components of the project's approach to scaling up, assessing relevant contextual influences, and taking stock of the scientific basis for the product |
| **2. PARTNERSHIPS** | Collaborations with external groups to support the process of scaling up, including strategies for identifying, developing and sustaining fruitful partnerships |
| **3. FINANCIAL HEALTH** | The projection of scale-up costs, and the development of a financial plan for securing and managing funds over the long term |
| **4. TECHNOLOGY & ARCHITECTURE** | Steps taken to optimize the mHealth product for scaling up based on its anticipated user base, purpose, integration with information systems and compatibility with other components of the information systems architecture |
| **5. OPERATIONS** | Organizational and programmatic measures for supporting the implementation, use and maintenance of the product throughout the scaling-up process |
| **6. MONITORING & EVALUATION** | Decisions and activities that enable effective process monitoring and in-depth outcome evaluation, based on project and stakeholder need |

*MAPS Toolkit: mHealth Assessment and Planning for Scale. Geneva: World Health Organization; 2015

# Groundwork/ Partnerships

| Facilitators | Barriers |
|---|---|
| • Landscape Assessment | • Time |
| • Business model framework | • Poor infrastructure |
| • Small-scale pilots | • Lack of foundational national policies |
| • Government commitment and priorities | • Cost of national scale-up under estimated |
| • Foundational guidelines | • Population growth not factored |
| • Costing analysis | |
| • Support from government partners | • Time/learning curve |
| • Formation of technical working group | • Lack of initial formal contracts |
| • Partnership with technology expert as a service provider | |

# Groundwork Lessons Learned:

1. Assessments during the groundwork phase provide helpful snapshots of the current environments of the targeted population, helping to decide what is best for end users and prevent duplication of systems.

2. Demonstrating the success of pilots helps to engage and elicit government commitment. The government should feel confident investing in the system, allocating the necessary resources and tools to run and manage the system effectively at all levels, and mandating the system be used nationwide, with recommendations and clear roles of system users at all levels.

3. Evidence-based feedback from end users is imperative for making the correct improvements as scale-up proceeds and is essential for successful uptake and long-term use of the system.

# Partnerships Lessons Learned:

1. **Engaging the government at all stages—from system design, to early pilot, through to evaluation and scaling up—builds strong commitments from government partners. Building capacity and a network of support at provincial and district levels is essential for successful uptake and long-term use of the system.**

2. **Forming a TWG or having a national technical support team is key. However, the roles should be clearly defined and adapted as needed.**

3. **Partnership with a strong and well-established MNO can aid in implementation in hard-to-reach areas and ensure capacity needs are being met.**

# Technology



| Facilitators | Barriers |
|---|---|
| • Mobile Network Operator capabilities | • Lack of national ID |
| • Sustainable technical leadership | • Large data |
| • End-user feasibility and feedback | • Fee-based and private facilities |
| • Data security and quality | |
| • Not a handover software | |
| • API | |

# Technology Lessons Learned:

1. **Be prepared for and anticipate data expansion. A population-prediction analysis before scaling up is a useful prediction tool.**

2. It is hard for just one NGO or small company to develop the technical requirements of a system alone; collaboration and user feedback are key.

3. **SOPs should be developed that clearly state protocols to ensure data quality at the time of data entry, highlighting the importance of avoiding duplications, standardizing duplication avoidance procedures, and providing frequent M&E activities.**

4. The EIR should be designed to be interoperable with other country information systems, and APIs should be developed to communicate with independent software systems, integrating data into one national database.

# Operations and Monitoring & Evaluation

| Facilitators | Barriers |
|---|---|
| • ToT as a sustainable method for training large populations | • More time needed for ToT training than anticipated |
| • Training support from PATH | • Lack of funding for EIR-specific supervision visits |
| • Training provincial and district staff provided sustainable layers of technical support | • Supervisors do not have enough time to prioritize the NIIS supervision |
| • Technical support well planned for long-term sustainability | • SOPs for supportive supervision pre- and post- training not developed |
| • Inputted data used to determine supervision priorities | |
| • M&E framework was developed at an early stage | • Few resources are available for monitoring |
| | • Inconsistent data quality remains an issue |

# Operations Lessons Learned:

1. **Training multiple levels of health care workers can help new staff, facilities with high staff turnover, and facilities in need of refresher trainings receive the training that they need as fast as possible.**

2. **Financial and human resources should be allocated from the local governments to maintain the system.**

3. **Monitoring visits by committed supervision leaders are needed to ensure data quality of the system and support facilities' transition to an entirely paperless reporting system.**

4. **Advocating for local authorities to plan appropriately to remove the paper-based system would reduce the burden of dual reporting and reduce the workload for end users.**

# Monitoring & Evaluation Lessons Learned:

1.  Allocate a budget and resources for M&E as early in the scale-up as possible, adapting as needed.

2.  Develop an M&E framework from pilot stage and beyond to track the implementation of the system and evaluate the impact of the system on health outcomes.

3.  Create monitoring tools and reporting systems to track the progress of system use, as well as a comprehensive analysis to evaluate the effectiveness of the system.

# Key take-aways and sustaining the system

1.  **Government commitment**: very high commitment from the central and provincial government is one of the most important factors for success (Deputy Prime Minister and Vice Minister of Health were directly involved in giving direction and guidance during development and implementation). Investment from local authorities for deployment in two pilot provinces.

2.  **Close collaboration between NEPI/MOH and PATH** from the beginning and during every step: business analysis, system design, early pilot/testing, demonstration, evaluation, and finalization.

3.  **Partnership with a capable IT service company** (Viettel) for national scale up. Close collaboration between system owner (NEPI/MOH), TA agency (PATH), and IT service company (Viettel).

4.  **Start with a small-scale pilot**, learn from those experiences, prove-it works, get feedback from end users and managers, and improve the system before scaling up.

# Moving forward…

1. Strengthen the technical working group (TWG), comprised of representatives from levels (National, regional, provincial, some selected facilities), PATH and Viettel
2. Develop the NIIS implementation guideline and toolkits for the transition to apply digital reports
3. Improve data quality, analysis and use
4. Increasing uptake of the NIIS in the private sector
5. Develop an E-learning portal
6. Development of e-Immunization Card and disseminate across the country
7. Pilot using digital reports for immunization and vaccines in two provinces (Hanoi and Son La) before rolling out nationwide
8. Capture our work to highlight several lessons learned for sharing among national and international stakeholders

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# Interview with National Expanded Program on Immunization (NEPI) and PATH



Dr. Dang Thi Thanh Huyen - Vice Head, NEPI Office National Institute of Hygiene and Epidemiology, Vietnam



Mr. Dao Dinh Sang – Program Officer, PATH, Vietnam:

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# Any Questions? Comments?

# Thank you for your time!