



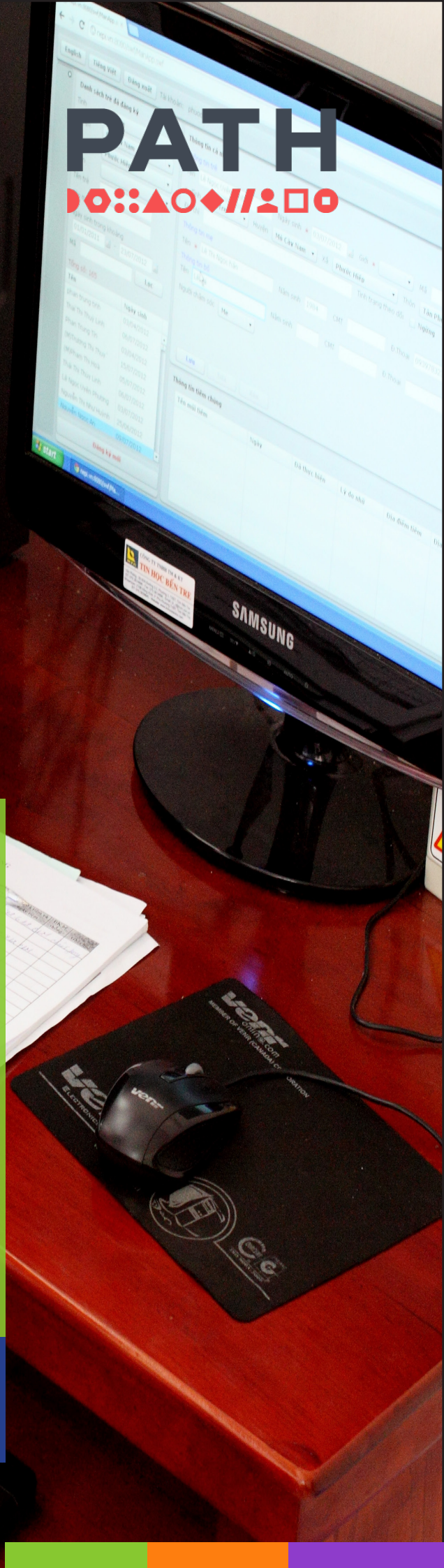
Hãy nói theo cách của bạn

# PATH



# Mobile Network Operator Partnerships in Action for Health:

A Vietnam case study on mobile network operator and Ministry of Health engagement for electronic immunization registry application





This case study was developed by the Introducing Digital immunization information systems - Exchange And Learning project, a collaboration of PATH, the Vietnam Ministry of Health, General Department of Preventive Medicine, the Vietnam National Expanded Immunization Program, Viettel and authored by PATH.

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**2019**

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## ABBREVIATIONS

EIR	electronic immunization registry
GDPM	General Department of Preventive Medicine
ImmReg	Digital Immunization Registry System
IT	information technology
mHealth	mobile health
MNO	mobile network operator
MOH	Ministry of Health
NCD	noncommunicable disease
NEPI	National Expanded Program on Immunization
NIIS	National Immunization Information System
SMS	short message service
TWG	technical working group
WHO	World Health Organization



# 1. Introduction

## 1.1. Purpose

As health experts, governments, and policymakers around the world harmonize their goals to improve health outcomes through the use of better data and digital tools, the importance of partnerships with key technology stakeholders has become increasingly apparent. With extensive reach among populations, resources, and innovative tools, mobile network operators (MNOs) have a huge potential to strengthen interconnections between the health and technology sectors, and the populations they serve. However, documented guidance on selecting an MNO partner, as well as facilitating and maintaining such a partnership, is currently lacking.<sup>1</sup>

After reviewing the successful 2014 pilot of a digital immunization registry that was implemented by the global health nonprofit organization PATH in Ben Tre province,<sup>2</sup> the Ministry of Health (MOH) of Vietnam partnered with Viettel Business Solutions (Viettel), Vietnam's largest MNO, and PATH to develop and scale up the National Immunization Information System (NIIS), the electronic immunization registry (EIR) that is being implemented today. The objective of this case study is to share lessons learned from the partnership between MOH, Viettel, and PATH to implement and scale up the NIIS. Vietnam's story of partnership to implement an EIR will ultimately serve as a guide for others to effectively build alliances with or as MNOs in order to achieve future goals, expand immunization coverage, and improve health outcomes around the world.

## 1.2. Intended audience

This case study seeks to benefit any innovator, organization, or government body that is considering or engaging in learning, building, facilitating, investing in, or scaling up an EIR. Moreover, it provides a pathway for effectively initiating, maintaining, and improving partnerships with MNOs, which may be especially relevant in the Mekong region and for other organizations working in low- and middle-income countries. Although the findings in this report highlight the landscape and resources available in the context of Vietnam, the content represents international interests that are borderless and applicable to any country, technology provider, organization, or donor seeking guidance on improving health data and outcomes.

## 1.3. Methods

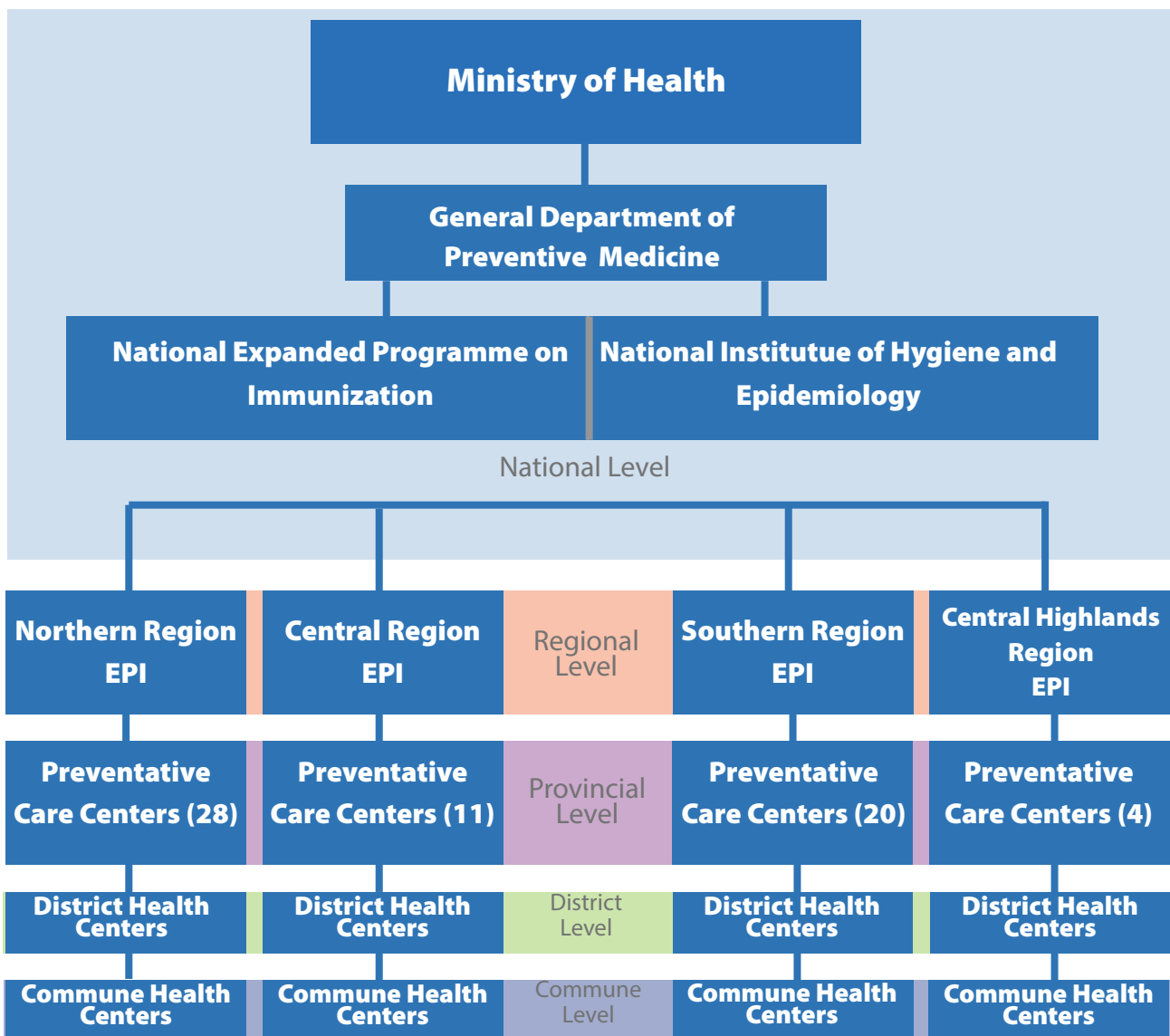
This case study was compiled based on interviews with leaders and relevant personnel from Viettel, the General Department of Preventive Medicine (GDPM), National Expanded Program on Immunization (NEPI), and PATH to gather information from various parties involved in the formation of the MNO partnership and the NIIS in Vietnam. In addition, supporting documents were referenced for background information on the development of a digital immunization registry software; this included PATH reports on pilot projects that influenced the NIIS and letters that cited the initiation of Viettel and PATH's official partnership in regard to the NIIS in 2016. Literature from other MNO partnerships, United Nations global guides, and Pan American Health Organization case studies were also reviewed for guidance.

## 1.4. Definition of terms:

**Mobile network operator:** A wireless service provider or wireless carrier that provides wireless communication services to the population targeted. This can include internet capabilities, Wi-Fi, mobile applications, and short message service (SMS) and voice functionality. In Vietnam, Viettel has the largest number of subscribers.

**Mobile health (or mHealth) service provider:** Based on the World Health Organization framework, this includes developers and implementors of an mHealth service to the population targeted. In this case study, this refers to the MOH, GDPM, NEPI, and PATH, although Viettel also helped in the development of the system.

Figure 1. Structure of health centers in Vietnam



Abbreviation: EPI (Expanded Programme on Immunization)



## 2. Enabling environment: Vietnam

### 2.1. Growth of digitalization and mobile technology

“As MNOs continue to deliver new services for users, mobile communication is an ever-evolving industry and is part of everyday life for a growing proportion of the world’s population”, World Health Organization.

Since the first connection to the internet in 1997, Vietnam has experienced rapid socioeconomic development. The country now ranks among the top 20 countries with the largest numbers of internet users in the entire world. The growth of internet users in Vietnam jumped from 0.2 percent in 2000 to 67 percent in 2017. Additionally, the usage of smartphones and mobile technology has rapidly increased in the last decade; the number of smartphone owners increased rapidly, over three times from 2013 (20 percent) to 2015 (72 percent), in both rural and urban settings.<sup>3</sup>

As one of the fastest growing economies in the region, Vietnam is embracing new opportunities.<sup>4</sup> Social and public services in Vietnam are adopting digital tools and moving away from outdated and problem-ridden paper-based systems. For example, in 2019, Vietnamese citizens can now apply for a birth certificate or driver’s license online rather than use a paper application form.<sup>3</sup>

In health care settings, Vietnam’s health facilities are increasingly installing digital systems to manage patient records and data and to communicate between clinics. This saves time and money for both the public and the government.<sup>3</sup> This recent development is more advanced compared to neighboring countries and even to some countries all over the world, including some with higher gross domestic product.<sup>3</sup>

Digitalization enables both private and social sectors to increase communication, narrows geographic distances, and facilitates access to hard-to-reach populations. Vietnam is fast to acknowledge the exciting and innovative benefits from moving to digital systems.

### 2.2. Build-up to the NIS

Vaccines have saved more lives than any other health innovation in the last 50 years. However, in order to maximize their health benefits and decrease deaths from diseases, vaccines must be readily available and administered on time. Since 1985, the Vietnam NEPI has successfully implemented a nationwide immunization system. In its earlier phases, NEPI relied entirely on paper-based methods for immunization record keeping and vaccine supply management and tracking. This system created gaps and multiple apparent challenges (see Table 1) in expanding immunization coverage. PATH, with the support of global partners, theorized that by transitioning from paper to digital records, Vietnam’s immunization system would be able to excel to its full lifesaving potential. Following this realization, PATH began brainstorming with NEPI in 2012 on innovations that could close information gaps and increase the success of the immunization system throughout the country.



Table 1. Benefits of moving to digital immunization registry

<b>Challenges of a paper-based system</b>	<b>Benefits of moving to digital</b>
<p>Paper-based reporting systems require additional work and maintenance which can create a significant burden for health care workers; this burden only increases with the introduction of new vaccines</p>	<p>The reporting burden can be reduced, enabling health care workers to spend more time on other tasks.</p>
<p>Immunization data recorded in the current system are often delayed or incomplete, as it is necessary to move the data from district health centers to the provincial, regional, and finally the national level.</p>	<p>The completeness and timeliness of immunization data can be improved at all levels if the reporting data do not need to be moved from commune to national level and can be inputted into one system.</p>
<p>Immunization data recorded in the current paper system are frequently incorrect due to estimation and arithmetic errors.</p>	<p>The quality and accuracy of information available can be improved at all levels by having a computer generate the estimate and arithmetic. Also, sending SMS reminder to caregivers would reduce the errors of writing and hand-delivering invitations to immunization days at commune health centers.</p>
<p>Managers at all levels find it difficult to locate specific vaccines in the supply chain</p>	<p>Real-time information about vaccines in stock can be increased at all levels</p>
<p>The Vietnamese immunization system relies on various administration, storage, and reporting procedures. However, there is a lack of documented standard operating procedures to ensure that these processes are conducted correctly and consistently.</p>	<p>Efficiency and consistency of performance across the NEPI system can be improved through the development of high-quality standard operating procedures.</p>

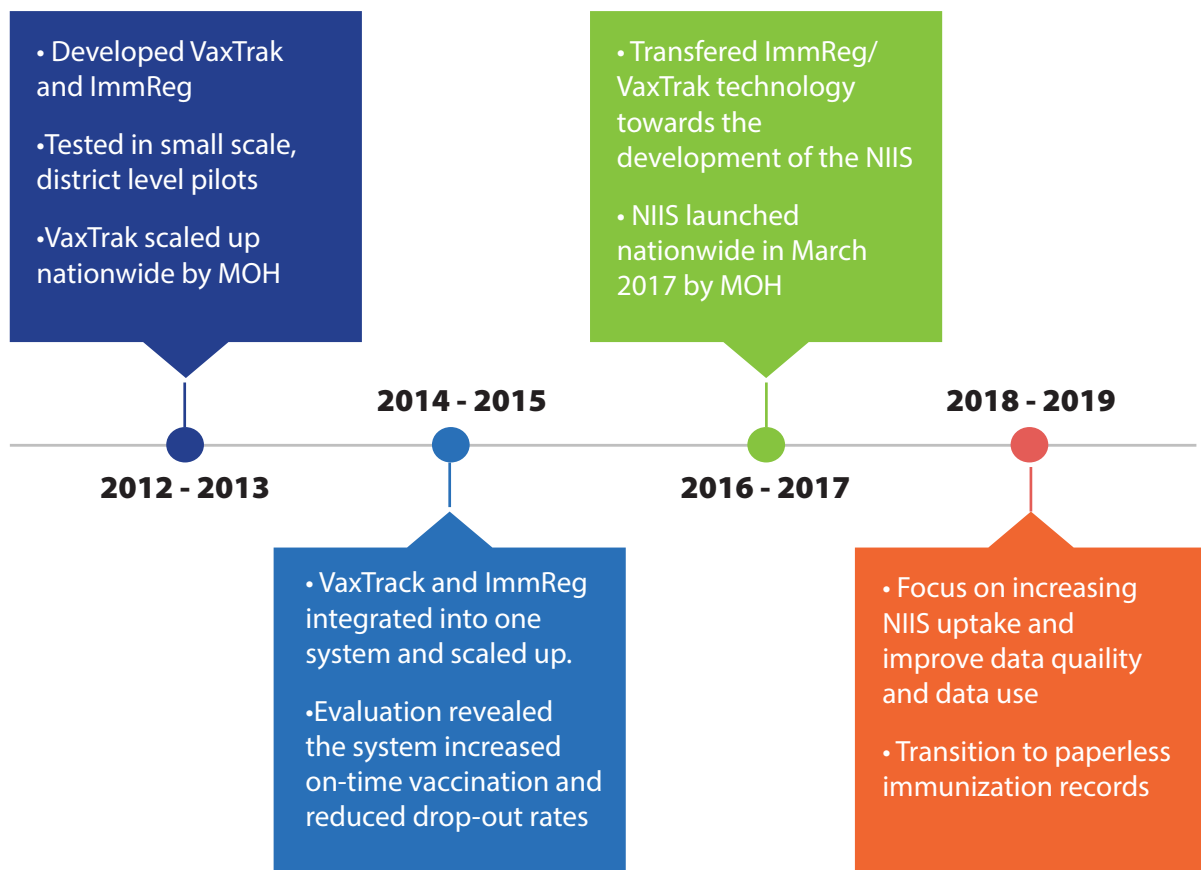
## IMMREG SYSTEM: A FIRST OF ITS KIND IN VIETNAM

ImmReg was a pilot web-based software application that tracked women and children's immunization statuses. It could be accessed via a computer or mobile phone enabling health care workers to record and access immunization data in real time and easily generate reports at district and provincial levels. ImmReg also sent SMS reminders to caretakers on when their child was due for vaccination. The system reduced workload burden at the health center level, improved accuracy in data recording and increased on-time vaccination rates.

ImmReg is an immunization registry software program that was developed in 2012 through the collaborative efforts of NEPI and PATH. It was piloted in a district in Ben Tre province in the south of Vietnam. The aim of the ImmReg pilot was to address the key challenges with paper-based immunization registries and improve timelines and coverage of childhood vaccinations. In addition to ImmReg, PATH also helped to develop VaxTrak a digital tool for tracking vaccine stocks. In 2014 and 2015, PATH worked with the Ben Tre Provincial Health Department and the Preventative Medicine Center to scale up the system from district to provincial level. Results from the ImmReg software pilot showed that transitioning to a digital system increased full immunization coverage rates in the first year of life and improved on-time vaccination rates.<sup>2</sup>

The NIIS, the EIR currently in place, is the result of the collaboration, integration of ideas, and partnership between the MOH, Viettel, NEPI, GDPM, and PATH. The NIIS is now used in all 63 provinces across the country; as of July 2019, over 17 million records have been registered into the system.

Figure 2. Timeline of PATH involvement in NIIS



Abbreviations: ImmReg, Digital Immunization Registry System; MOH, Ministry of Health; NIIS, National Immunization Information System.

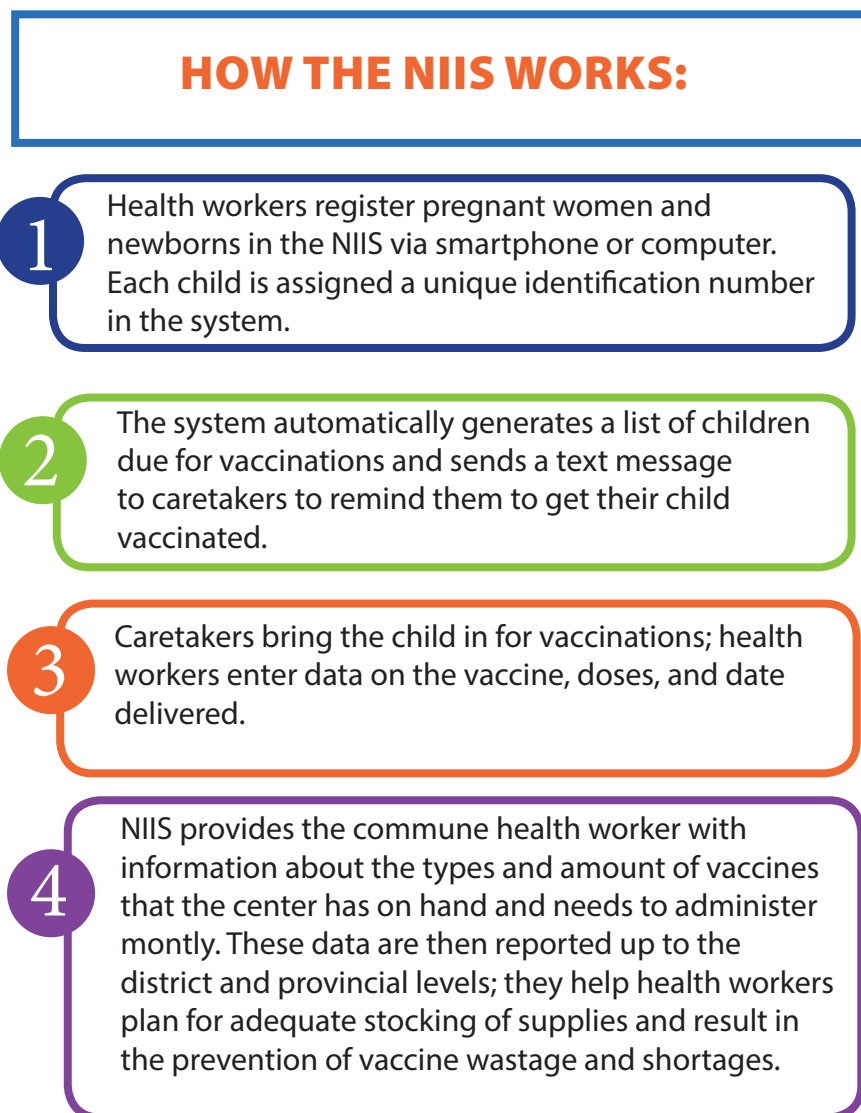
## 2.3. Partnership development

In May 2016, the Vietnam MOH requested that PATH provide support to MOH and their partner Viettel in the formation of the national-EIR, the National Immunization Information Management System [now the National Immunization Information System (NIIS)]. The MOH planned to integrate the ImmReg and VaxTrak systems into a new software application built and run by the MOH. Instead of a contract or memorandum of understanding, MOH sent a request letter to PATH asking PATH to assist in the system design, development, and implementation.

In order to facilitate the technology transfer of ImmReg/VaxTrak into the new system (the future NIIS), synergistic collaboration and partnership were vital. PATH transferred all technology (data flow and database structure design) to Viettel. PATH created a practice system for the Viettel team to explore the system. PATH also sent staff members to work at Viettel on the development team to analyze the business models and user requirements, as well as the programming team to support and catalyze the development process and steer the design to a user-friendly system, based on past implementation data (from the Ben Tre pilot).

In March 2017, the collective system, the NIIS, was officially launched by Deputy Prime Minister Vu Duc Dam.

Figure 3. How Vietnam's National Immunization Information System works.



Abbreviation: NIIS, National Immunization Information System.

## NIIS Technical Working Group:

The NIIS Technical Working Group (TWG) was formed to finalize and maintain the user-friendliness of the NIIS system, to collaborate on meeting end-user needs with regard to client and vaccine-tracking capabilities, and to generate reports for high-level decision-making. The TWG is important in order to:

Figure 4. Important roles of the NIIS Technical Working Group.



The TWG is comprised of a critical set of diverse partners that contribute to the sustainability and technical implementation of the NIIS in Vietnam:

**NEPI:** (Immunization Expert) technical lead on business analysis and developer of user requirements, reporting systems and reporting mechanism. NEPI asks the question, “what do end users need?”

**MOH/GDPM:** (Health Expert) coordinator of connecting all stakeholders together, administration support and the push for provincial implementation and policy change

**Viettel:** (Technology Expert) system developer and maintainer

**PATH:** (Liasion and Support Expert) technical support and advisor for all stakeholders, serving as the connection between immunizations, general health and technology and the facilitator of communication between TWG members.

### TECHNICAL WORKING GROUP DELIVERABLES:

1. Analyze business and user requirements as needed
2. Develop user manuals
3. Identify the appropriate ways to implement the system in the form of a high-level implementation guideline
4. Collect feedback and analyze data for consistent and constant improvement of the system



## 3. Ministry of Health perspective on partnership

### 3.1. Benefits

A crucial question in the foundation of a partnership with an MNO from a health agency perspective is: “What assets are brought to the partnership by MNOs?”<sup>1</sup> According to the WHO, these commonly include core connectivity, core support infrastructure, and business infrastructure.

In Vietnam, Prof. Tran Dac Phu recognized that the scope of a project such as the NIIS could only be accomplished with technology. He said, “Only IT [information technology] can help to track and manage people’s immunization history for their whole life, from newborn to 15 years of life and then on to death.”<sup>5</sup>

Data for the NIIS is extensive, with 113 million vaccine injections and 1.7 million births in Vietnam annually, amounting to 17 million immunization records. In addition to vital vaccinations from birth to the age of 15 years, people need vaccinations until old age (e.g., for rabies or influenza). This context required the NIIS to be capable of high-capacity data storage, organization, and analysis. This meant partnering with an MNO that could meet the need for large data capacity, upkeep of organization, and the financing to maintain capacity and allocation of resources.

As explained in section two on the background information on ImmReg, the NIIS requires significant capabilities from technology leaders for the technical robustness and maintenance of the system. It also requires strong connectivity capabilities for the delivery of SMS reminder messages to the large datasets of phone numbers that are registered in the system.

### Definitions of terms

**Core connectivity:** Capability of mobile network operator to connect end users with each other, the system, or other important stakeholders with voice calling, text (SMS), and data applications through their wireless mobile network.

**Core support infrastructure:** The infrastructure of the mobile network operator that has been developed to serve their customers, including systems for billing, and the tracking of usage and quality of service. This can also include customer-service relationship capabilities (call center and data center infrastructure)

**Business infrastructure:** Access to marketing capabilities, advertising infrastructure, and distribution capabilities.





PATH/Maya Rivera



If you want to implement a system at this scale (NIIS), it is imperative to work with a big company like Viettel. The MNO [mobile network operator] of choice must have a large capacity and a large presence in the country, be financially secure, and be able to provide necessary human resources in both quality and quantity. Choosing an MNO, it would be best to select the largest MNO with the longest history of success in the country of implementation



- Dr. Dang Thi Thanh Huyen NEPI

### 3.2. Choosing a Mobile Network Operator: Vietnam

Understanding motivating benefits can lead to the determination of the best MNO for partnership. In Vietnam, Viettel, a state-run organization, has a well-established relationship with the government of Vietnam. “Viettel trusts the government, and the government trusts them. When MOH trusts PATH, then there is a big circle of trust”, Dr. Vu Minh Huong of PATH.<sup>6</sup> The MOH and GDPM have confidence in Viettel’s data security; they are certain that Viettel will protect important health data in the long term. This serves as motivation for longstanding partnership and continuous project development. Beyond this unique partnership trust base in Vietnam, Viettel was able to check the boxes of global framework assets introduced above and detailed below:

**Core connectivity:** Viettel is the largest MNO in Vietnam, with a large network of mobile services and an expansive network range into rural areas and hard-to-reach populations. Dr. Huong from PATH stated, “One of the biggest advantages is that Viettel has a very wide network down to village level. They have access to every village in Vietnam. They have a lot of resources—financial, human resources—in every province.”<sup>6</sup> Viettel was able to confront Vietnam’s current spike in urbanization. It had the capability to form an effective immunization record system network that could track and follow children who move locations, and maintain their records throughout these transitions. This not only prevents duplication of vaccinations and cuts down the use of stocks that could be used for other children, it also cuts down duplication of records, which leads to increased likelihood of errors and poor data quality.

**Core support infrastructure:** The infrastructure of Viettel is designed for customer service. Viettel’s server and mobile network brings internet connectivity to every village. It has the capability to provide computers to community health centers that do not yet have the technology to implement a digital system. Viettel also has an extensive support network, as they have large human resources capacity to support end users in every district nationwide. Additional attributes of Viettel that stand out from competitors include their consistent and frequent updates to their systems based on groundbreaking new technology, and their prowess for applying this to systems rapidly. Based on previous system operations, Viettel proved that they were capable of implementing large-scale projects rapidly and had the experience to sufficiently work with and maintain big data. As Vietnam sees 1.7 million newborns registered into the system annually, the data for this system will only grow as upkeep of the system improves; maintaining this quality is an essential attribute.



WHO/Mark Leong

**Business infrastructure:** Viettel has a well-established business and name in Vietnam, as it is the largest mobile network provider. It is a popular brand for clients all over the country, and it has the capacity to reach and gain clients in very rural districts. Viettel also has a large capacity and a global presence, with services in ten countries in addition to Vietnam: Bitel in Peru, Halotel in Tanzania, Lumitel in Burundi, Metfone in Cambodia, Movitel in Mozambique, Mytel in Myanmar, Natcom in Haiti, Nexttel in Cameroon, Telemor in East Timor, and Unitel in Laos. In addition to supporting nonprofit projects and showing commitment to corporate social responsibility (when a company takes responsibility for their impact on the communities they serve) such as the NIIS, they also continue successfully as a profit-driven business; they conduct other software development in the health insurance and hospital management sectors. Viettel in Tanzania has around 1 million customers, which spotlights that, as a business, Viettel is proficient and capable of a vast array of projects that differ in both focus areas and business models.

Although these motivating factors for an mHealth service provider to choose the correct MNO are relevant to Viettel's capabilities, Vietnam presents a distinct standpoint on the partnership between government (MOH) and an MNO (Viettel): Viettel is a state-run MNO and is technically a branch of the government. Thus, it creates a strong foundation of experiences and trust with the government, which continues to maintain them as their MNO of choice for multiple projects.

### **Additional benefits of the Viettel partnership**

The partnership between the mobile health (mHealth) service providers—the General Department of Preventive Medicine, Ministry of Health, National Expanded Programme on Immunization, and PATH—and Viettel has so far proven quite successful. Viettel has contributed the framework benefits listed above, as well as responded to the requests from the various mHealth service providers. This has included facilitating accurate representation of the various partners when needed (e.g., putting various logos and names on documents, press releases, and their website). This has created a foundation of trust between the partners as a team of collaborators for the system, rather than a siloed relationship.



# 4. MNO perspective on partnership

## 4.1. Drivers

Motivators for MNOs to partner with mHealth service providers like the MOH, NEPI, GDPM, and PATH include improving health in society, health initiatives setting them apart and above other MNOs as more invested in the health and well-being of the population, using their already developed information communication technology functionalities, and increasing revenue.<sup>1</sup>

Viettel is the largest and most established MNO in Vietnam. Although they are a business, they are “motivated to allocate their expansive network and resources to causes that benefit society and create better health outcomes.”<sup>7</sup> Initially, Viettel was motivated to become involved in the health sector when they discovered that they were capable of allocating beneficial resources and support to develop information technology (IT) applications that would directly benefit health outcomes. Viettel started at the primary health care level when they aimed to become more involved in health insurance.

According to Viettel, the advantages of partnering with the health sector are obvious: It synergistically increases the value of the brand name. Also, the NIIS is a model for the national IT system; as the forerunner of a national IT system, Viettel anticipates that its involvement with the NIIS will lead to Viettel’s growth as an IT expert nationally.

Figure 5. World Health Organization benefits of partnerships for MNO

Driver	Proof points
Impact on health outcomes	<ul style="list-style-type: none"><li>• Scale of the health problem</li><li>• Burden of disease</li><li>• Visibility of the health problem</li><li>• Directness of the services impact</li></ul>
Competitive differentiation	<ul style="list-style-type: none"><li>• Scope for differentiation</li><li>• Impact on core operator metrics: market share, subscriber base, customer churn</li><li>• Enhanced consumer brand</li><li>• A unique value proposition created for the customer</li><li>• Improved usage of current operator services</li></ul>
Effective use of Viettel-ICT’s existing capabilities	<ul style="list-style-type: none"><li>• Improved returns on existing investments</li><li>• Effectively use and scale-up existing ICT capabilities</li></ul>

World Health Organization. (2015). A practical guide for engaging with mobile network operators in mHealth.



Even though Viettel is a for-profit organization/business, we would like to support the Ministry of Health to develop applications for the health sector and contribute to society.

- Mr. Khong Van Dong  
Viettel



PATH/Maya Rivera

Relationship-strengthening and trust-building with the government as the partners move forward collaboratively spurs Viettel's commitment to the system and showcases nationally and globally that with the support from Viettel, the NIIS was scaled up to a national-level system, and that any IT system developed by Viettel has the proficiency to meet high-level and stringent requirements with potential worldwide application.

### Benefits to Viettel from mHealth service providers:

**Content:** Viettel initially did not have base knowledge of data flow and end-user requirements with regard to the health sector; development of a successful system that would center around health worker and client users' needs required specified PATH and NEPI support. PATH and MOH also provided high-level health information knowledge-sharing (such as immunization materials and general health system background materials).

**Technology:** The development of the NIIS required the combined efforts of multiple partners, but it stemmed from a successful design by PATH. It was key to share technological information about the system and why it would fit the needs of end users, as well as to target the populations that needed the system the most.

**Implementation experience:** The success of the PATH pilot of ImmReg in Ben Tre and PATH's already documented positive relationship with the government provided sound evidence that PATH was capable of scaling up and supporting the implementation of high-level health initiatives.

**Relationships and credibility:** PATH is a global organization that works to accelerate health equity by bringing together public institutions, businesses, social enterprises, and investors to solve the world's most pressing health challenges.

As Viettel continues to work closely with the Vietnamese government, the trust between the partners builds, as well as encourages future collaboration and continued selection of Viettel as the choice MNO for projects.

**Support and funding:** Currently, Viettel is supporting MOH and has no plans of handing over the NIIS. They would like to stand by the software to continue its upkeep and work toward upgrading and expanding to other health areas and sectors. In terms of incentives, even without formal payment from mHealth service providers, Viettel's revenue has the potential to increase based on increased brand recognition and the enhanced likelihood of further projects outside of Vietnam. Viettel's commitment when broadcasted on a global scale, highlights the company's dedication to improving health and well-being and their competence in operating a range of projects in different areas.





# 5. Challenges and lessons learned: Vietnam

According to the WHO, there are three main challenges that MNOs commonly face when developing a partnership with mHealth service providers; these hurdles were present in the Viettel-MOH-PATH partnership<sup>1</sup>:

## 1. Long-term versus short-term investment strategies:

“MNOs generally work with shorter product life cycles than are required by mHealth service providers, so investing in long-term research and development is challenging”<sup>1</sup> Viettel was new to investing in immunization information systems, especially health projects that were being built for scale. Being part of a partnership that was designed for long-term investment and continuous upkeep of a national system required adaptation of existing business models, as well as knowledge acquisition about communication and exchange strategies between partners.<sup>7</sup>

## 2. Financial constraints:

Although committed to the NIS beyond financial motivations, Viettel still faces challenges with financial aspects of the system, as well as the uncertainty from not having a high-level agreement on financial aspects of the project. As of now, they pay for many things, such as research and testing of the system, out of pocket.

## 3. Different business models:

Similar to the challenges seen by mHealth service providers, the MNO Viettel faced a significant learning curve when developing the system. As they are not health or immunization experts and had little experience with mHealth initiatives, changing from a business and commercial venture to a public health collaboration mind-set presented difficulties.


Additionally, partnerships between mHealth service providers and MNOs may prove to be challenging, even with an enabling environment and a circle of trust built with the chosen MNO. In Vietnam, the mHealth service providers MOH, GDPM, NEPI, and PATH faced complications in the partnership with Viettel in several areas outside of the WHO guidelines<sup>1</sup>:

**Security:** Although the government has strong confidence in the security of data in the system, Viettel’s successful security and sensitivity with internet protocols in support of government standards at times prevented PATH from assessing and accessing the system extensively. If we do not have access to all the information about the system, then we may not fully be able to support or improve the system. If we do not have full access, it is hard for us to fully assist.<sup>6</sup>

## **Learning curve and ability to exchange and understand information among partners:**

GDPM, NEPI, and PATH found that initial conversations about the health outcome goals of this project were difficult due to a drastic variance of experience with health and immunization terminology. Viettel, like many MNOs, is not a health agency and has little experience in immunizations and high-level health initiatives. The translation of information from highly technical teams such as MOH, GDPM, and NEPI to Viettel in order to paint a clear picture of Viettel’s role, the project, and the end goals took time and collaboration.





“Step by step,  
we understood more  
and more of immunization  
health and terminology  
associated with high-level  
health projects”

- Mr. Khong Van Dong,

Viettel

**Formal agreements:** In Vietnam, all of the partners who were involved in the NIIS have actively voiced their enthusiasm for the system. They continue to prove their commitment by attending TWG meetings and participating in assessments and improvements of the system. This, however, is less sustainable than a formal and written agreement signed by all stakeholders. The lack of coordination and a formal, signed agreement created a discrepancy in decided and agreed outcomes, roles, deliverables, and financial responsibilities. This not only created confusion on both sides, but also created delays in coordination and implementation. On reflection, when the project was established and plans were made for long-term implementation, a more formal agreement between all stakeholders should have been signed. A memorandum of understanding, as an official document and collaboration road map, would have been an ideal binding document to establish these foundational definitions. After the signing of a formal agreement between parties, partners should conduct regular meetings to address if they are meeting signed partnership actions, agreements, and conditions, and to update the contract as needed.<sup>6</sup>

### 5.1. Takeaway advice after looking back

In developing a pilot designed for scale, developers of the system should immediately begin looking for a strong MNO partnership instead of waiting until the project has matured. Establishing a strong partnership will enable MNOs and mHealth service providers to grow together with the project and create understanding on both sides, which will reduce learning curves and provide real-time experience to perfect the system and synergistically facilitate the expansion of uptake.

In the case of Vietnam, it was very important that the MNO was trusted by the government, because the information in the NIIS is incredibly sensitive. To begin the project with a foundation of trust with an established MNO with history in the country and a long record of services is evidently significant.

Viettel recommends that other MNOs move toward similar projects globally, as this cross-sector collaboration is necessary. Partnerships like the one formed in Vietnam secured and built better connections between important entities globally who are all focused on the betterment of society.<sup>7</sup>



## 6. Future: Where do we go from here?

### 6.1. Current focus: partnership goals

The NIIS system is still not perfect. Viettel is committed to increasing data input and facilitating the automatic generation of reports for repository. The NIIS system now meets the requirements for tracking patients, but it needs to be improved. NEPI will continue working with Viettel to finalize the system, with PATH continuing as a technical advisor and GDPM facilitating policy change and mobilizing commitment at the provincial level. The system desperately needs to increase its end user retention and improve data quality while reducing duplications.

### 6.2. Potential projects

The data for the NIIS is very important for NEPI but now that an established TWG is dedicated to working together and collaborating, opportunities to expand are becoming more evident. Other health areas can benefit from systems like the NIIS now that we have the support and the commitment of key stakeholders and the leaders of MOH, PATH, and Viettel. Incorporating nutritional data and noncommunicable disease information into the current system will use the strengths of the NIIS and sync health data into one platform; this, hopefully, will further improve data quality, decrease time spent on data input, and improve health outcomes.

Viettel has its own goals for the future as an MNO and hopes that every Vietnamese will have their own access to health electronic records. They are committed to working with the government to accomplish their goal to create a health sector that tops charts around the world in making all health records electronic. Viettel envisions the creation of an electronic individual identifier for each person to track more than just immunizations and include prescriptions, health conditions, medical services, administration records, and user-interactive services such as appointment scheduling—all integrated into one system. This could potentially branch out and connect with the noncommunicable disease-prevention and communicable disease-surveillance sectors.

PATH/Maya Rivera



GDPM has a goal for all newborns to be vaccinated and for 1.7 million individuals to be given unique bar codes in the NIIS. The goal is to have a national ID connected to the NIIS and other health trackers. First, however, GPDM/MOH would like to finalize the reporting system with the NIIS. “First and foremost, we should finalize immunization tracking because that takes priority, and then we should expand to NCDs and other health areas”, said Professor Tran Dac Phu.

GDPM also suggests that PATH, Viettel, and NEPI should continue working together and testing new software that would expand the concept of the NIIS to a larger scale, including tracking and storing data from various focus areas. Professor Tran Dac Phu stated that “The goal would be for all caregivers to be able to access their records, as well as their children’s records all in one system.”

NEPI shares the vision of continuing the work of the TWG to move forward with a data tracking and monitoring software. The trust and communication that have been formed between the TWG for the NIIS took years. Now that it is at its peak and the NIIS meets the requirements for tracking patients, and it works well, all partners should use this momentum to finalize the system, increase end-user upkeep, increase data, and expand the system to other health focus areas, such as nutrition and NCDs.<sup>8</sup>

Viettel has experienced great expansion since the start of the NIIS. The working relationship between PATH and Viettel continues to improve as the partnership and each individual organization builds and grows over time. Viettel and PATH anticipate working on more projects together, not only in Vietnam, but potentially in other Mekong-region countries (Myanmar and Laos). Metfone in Cambodia is run by Viettel; it provides a good gateway to moving internationally with partnership projects. “The fact is that as Viettel is expanding and are maintaining a partnership and including PATH on ideas, and this is a good indication that the relationship is getting better and stronger” explained Dr. Huong.

This case study is a valuable lesson that provides food for thought, as well as guidance for others considering similar partnerships.



For projects similar to the NIIS, I think that working with Viettel is key. This is a great example of a government-run, national-scale application worldwide. And opportunities to expand this knowledge is great for Viettel and great for PATH, as the relationship between the two partners is built on Viettel’s commitment to use its resources for good and PATH’s fundamental mission to work for public well-being and health. Both require little in requests from each other, and both are more than willing to put time, energy, and resources into the betterment of societies.



- Dr. Huong PATH

## Endnotes

- 1 World Health Organization. (2015). A practical guide for engaging with mobile network operators in mHealth for reproductive, maternal, newborn and child health. Switzerland: WHO Library Cataloguing-in-Publication Data.
- 2 United Nations Foundation, PATH, HRP (United Nations Development Programme, United Nations Population Fund/United Nations Children's Fund/World Health Organization/World Bank Special Programme of Research, Development and Research Training in Human Reproduction). PATH Vietnam and ImmReg: Expanding Reach of the Immunization Registry in Vietnam. Seattle: PATH; 2016. [https://path.azureedge.net/media/documents/ID\\_vietnam\\_unf\\_cs.pdf](https://path.azureedge.net/media/documents/ID_vietnam_unf_cs.pdf).
- 3 Anh Tú T. Opportunities and obstacles for digital technology in Vietnam's public health systems [blog post]. Innovative Support to Emergencies, Diseases, and Disasters (InSTEDD) Blog. February 23, 2018. <https://instedd.org/blog/opportunities-and-obstacles-for-digital-technology-in-vietnams-public-health-systems>.
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- 5 Professor Tran Dac Phu (director general, General Department of Preventive Medicine, Ministry of Health of Vietnam); in-person interview; May 23, 2019; Hanoi, Vietnam.
- 6 Dr. Vu Minh Huong (Asia Region Technical Advisor, PATH); in-person interview; May 13, 2019; Hanoi, Vietnam.
- 7 Dr. Khong Van Dong (Viettel); in-person interview; April 17, 2019; Hanoi, Vietnam.
- 8 Dr. Dang Thi Thanh Huyen. "Interview with NEPI." In-person interview. 26 April 2019.

