

EVIDENCE BRIEF

Outsourcing vaccine supply chain and logistics to the private sector

This document provides supply chain managers in low- and middle-income countries with an overview of the potential benefits of outsourcing components of their vaccine logistics systems to the private sector. It also provides practical advice on determining whether outsourcing is a viable option.

Why outsource?

Many government-run vaccine supply chains are struggling to:

- Manage the introduction of newer, more expensive vaccines.
- Maintain vaccine quality throughout the supply chain.
- Ensure vaccine availability at service delivery points.
- Mobilize the financial resources required to upgrade logistics systems as needed.
- Ensure the availability of skilled human resources.
- Keep pace with new policies, evolving best practice, and technological advances in supply chain management.

In response to these challenges, many governments are exploring alternatives to the “in-house” supply chain model, where governments assume full responsibility for their vaccine supply chains and logistics. Some are already benefitting from delegating logistics or maintenance responsibilities to specialized companies that can carry out these tasks at lower costs and at higher levels of service.

Typical benefits sought through outsourcing usually include:

- **Increased efficiency**
If a specialized company is contracted to perform certain supply chain and logistics tasks, managerial efficiency can be improved. Private-sector service providers often use highly efficient processes that make best use of available resources and technologies, minimize wastage, exploit economies of scale, and keep pace with changes in policy, new technologies, and management best practice.
- **Focused specialization**
By transferring storage and transport management responsibility, governments and national immunization programs can better focus on defining policies and strategies to provide high-quality vaccination services.
- **Reduced costs**
Cost-savings can sometimes be achieved when service providers take responsibility for investment in cold chain equipment, refrigerated trucks, fuel, and skilled logisticians, for which the government pays an agreed fee.

“The private sector can complement governments’ efforts in improving health logistics in specific aspects such as procurement, storage and distribution of medical products, vaccines and other technologies.”

Dr. Luis Sambo, WHO Regional Director for Africa
(Washington, DC, October 6, 2010)

What to outsource?

There are two distinct models of outsourcing, although neither of these are mutually exclusive—one or several supply chain functions can be outsourced. The supply chain and logistics functions with the greatest outsourcing potential for each model are described in more detail below.

Model 1: The service provider manages one or more functions of the vaccine supply chain as a service to the government

Procurement	The service provider facilitates the purchase of high-quality vaccines through an effective procurement process that observes well-established, internationally recognized procedures (whether imported or locally produced), exploiting specialized knowledge of the vaccine market, the products on offer, their prices, and their quality.
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Arrival and importation	The service provider manages customs clearance and other formalities, ensuring there are no breaks in the cold chain during transit.
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Cross-docking	The service provider takes responsibility for transporting vaccines from the port of entry to the national vaccine store or for offloading vaccine containers onto trucks for transport to redistribution points at the subnational level, depending on the context.
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Storage	The service provider takes responsibility for the physical storage of vaccines at different levels of the supply chain.
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Transport	The service provider takes responsibility for transporting vaccines between different levels of the supply chain (national to subnational distribution, for instance).
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Model 2: The service provider leases equipment to the government or provides ongoing support

Equipment leasing	The service provider leases vehicles or cold room space to the government, managing the staff and taking responsibility for equipment maintenance and replacement. Although this is often used by governments as a short-term measure to meet shortfalls in vehicle availability or a surge in vaccines during an immunization campaign, long-term leasing is less common.
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Maintenance contracts	The service provider takes responsibility for the ongoing maintenance of cold chain equipment or vehicles owned by the government.
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Fuel resupply	The service provider takes responsibility for resupplying the fuel or propane gas needed to run the cold chain at lower levels of the system, in instances where absorption equipment is required because electricity is not available.
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“Outsourcing functions of the supply chain to the private sector can yield significant benefits, but may not always be the right option. It should definitely be considered with necessary caution.”

Michel Zaffran, Director, Project Optimize and Coordinator, WHO Expanded Programme on Immunization (Geneva, July 20, 2012)

How to outsource?

Outsourcing has the potential to significantly increase supply chain performance, but may not be an appropriate solution for all countries. To make the right decision on whether to outsource, the government should first perform the following assessments. This will inform an evidenced-based decision-making process that compares the strategic and operational rationale of outsourcing with maintaining and strengthening in-house supply chain and logistics functions.

Identify core competencies	Is managing, storing, and distributing vaccines of strategic importance to the Ministry of Health and National Immunization Programme?
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Review internal processes	What do indicators (e.g., from an Effective Vaccine Management [EVM] assessment or other) say about the performance of each aspect of the vaccine supply chain and logistics systems? Are there areas that are particularly weak? Are significant capital investments required?
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Undertake a feasibility analysis	Are all stakeholders supportive of possible outsourcing? If they are not, what are their concerns? How many potential third-party logistics companies are capable of performing the required services and available for hire?
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Conduct a cost-benefit analysis	Does outsourcing make financial sense? For the function that may be outsourced, analyze the current cost of managing the function in house, and the potential cost of improving in-house performance and scaling up with new vaccines, and then compare these with the comparable outsourcing costs.
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Outsourcing should be considered if the government has:

- Identified supply chain and logistics functions that are of lesser strategic importance and that may not be best managed by the government.
- Assessed supply chain and logistics functions that are underperforming, through an EVM assessment, for example.
- Consulted with relevant stakeholders and discussed possible benefits and constraints.
- Identified reputable third-party in-country logistics companies that can perform the tasks.
- Analyzed the cost of outsourcing and compared this with the cost of keeping the functions in house.
- Determined how to provide ongoing contractual oversight and maintain a functional relationship with the service provider.

Outsourcing can yield important benefits but can fail if:

- There is a lack of coordination between parties.
- The wrong choices are made on what functions to outsource.
- Poor contracts are drafted without a service-level agreement.
- The government does not put in place adequate management oversight on the contract.
- Regular monitoring is not conducted using key performance indicators.

Detailed guidance on developing an implementation roadmap for outsourcing can be found in the USAID | DELIVER PROJECT report on [Outsourcing Public Health Logistics in Developing Countries](#). This document describes how to select and recruit a third-party logistics company to outsource; how to develop a service-level agreement; how to choose key performance indicators; how to develop a model contract; and key considerations for management oversight and monitoring of the contract by the government.

Outsourcing experiences

United States

Before 2008, the US vaccine supply chain was decentralized, highly inefficient, complex, and fragmented. At the time, 64 individual distribution networks and more than 400 storage depots supplied vaccines to 44,000 service delivery points. As the system expanded with the introduction of new vaccines, individual points of failure led to vaccine shortages, stockouts, and funding delays. Over time, the system could no longer respond to routine services and nationwide emergencies. The challenges culminated after 9/11, when unprecedented vaccine shortages occurred.

In response, the government developed a new vaccine management system, which included outsourcing the entire vaccine distribution process to a private distributor. The new system was designed to enhance operating efficiency, improve vaccine inventory visibility, and reduce operating expenses, and shared attributes of companies like Amazon and Walmart that employ best practice in supply chain management. The changes led to a streamlined vaccine supply chain, which reduced vaccine loss, improved the reliability of supply, and reduced overall costs.

Benefits of outsourcing the vaccine distribution process in the United States.

	1994	2008
Public-sector cost	US\$200 million	US\$3 billion
Number of vaccines	6	12
Funds allocation	64 lines of credit and multiple fund allocations each year	One centralized account
Distribution	64 independent distribution systems operating their own storage depots (430 nationwide)	One company distributes vaccines with a few depots and guarantees performance
Delivery	Up to 4 weeks	3 to 8 days

Although the cost difference between 1994 and 2008 is great, it represents an enormous increase in vaccine quantity as well as the quality of supply chain and logistics services. Economic modeling has shown that as of early 2008, the government's overall return on investment was estimated at US\$400 million, with annual savings of US\$19.5 million beginning in 2012.

South Africa

By 2005, South Africa's vaccine supply chain and logistics system in Western Cape Province had reached its limits. A vaccine management assessment conducted in 2004 revealed numerous shortcomings and highlighted the need to upgrade the entire cold chain system—particularly if new vaccines were to be introduced. But upgrading the government-run provincial vaccine store required large capital investment, for which no budget was available.

In 2005, Western Cape Province entered into a public-private partnership by outsourcing vaccine procurement and provincial storage, as well as vaccine distribution, to health centers across the province. The outsourced supply chain led to a streamlined three-step supply chain for vaccines: from the national level to the provincial level and directly to health centers.

A review of the outsourcing experience in South Africa revealed improved vaccine management during storage and transportation, and orders being met in a more timely fashion. The 6 percent outsourcing fee was cost-effective when compared to the supply chain and logistics costs of the previous government-run system.

Thailand

By 2009, Thailand's vaccine supply chain and logistics system faced challenges such as wasted and expired vaccine products, inventory control issues, and high costs. To improve efficiency, the government outsourced their vaccine supply chain through a vendor-managed inventory (VMI) system. The system was initially piloted in 28 of 76 provinces and gradually expanded nationwide by late 2010.

The outsourced VMI system streamlined inventory management by reducing from five to three the number of steps that vaccines had to go through in the supply chain. This reduced both the volume of vaccine stock and the length of time vaccines spent in storage.

An economic analysis revealed that in its first year, the VMI system saved nearly one-fifth of the cost of distributing vaccine throughout the national supply chain system. This was achieved through more efficient use of resources, lower logistics costs, and efficiency gains from a reduction of vaccines procured and distributed.

The comparative benefits of outsourcing in South Africa and Thailand.

	South Africa	Thailand
In-house supply chain cost (percentage of vaccine cost)	28%*	31%
Outsourced supply chain cost (percentage of vaccine cost)	6%	5%
Outsourcing cost indicators (per vaccine dose)	US\$0.27	US\$0.36

** This figure represents the average cost of a government-run supply chain system for vaccines in Eastern and Southern Africa, estimated based on countries' comprehensive multiyear plans.*

Finding more information

Emerging Trends in Supply Chain Management: Outsourcing Public Health Logistics in Developing Countries. USAID | DELIVER PROJECT, Task Order 1. 2010. [\[PDF\]](#)

Private Sector Role in Health Supply Chains: Review of the Role and Potential for Private Sector Engagement in Developing Country Health Supply Chains. Technical Partner Paper 13. Rockefeller Foundation, Dalberg and MIT-Zaragoza. 2008. [\[PDF\]](#)

Smarter Medicine: How the US Centers for Disease Control and Prevention Revolutionized the Way Vaccines are Delivered. Michael Copeland. Strategy & Business, Autumn 2008, Issue 52. [\[PDF\]](#)

An Assessment of Vaccine Supply Chain and Logistics Systems in Thailand. PATH, World Health Organization, Health Systems Research Institute, Mahidol University. Seattle: PATH; 2011. [\[PDF\]](#)

Outsourcing the Vaccine Supply Chain and Logistics System to the Private Sector: The Western Cape Experience in South Africa. WHO, Collaborating Center for Cold Chain Management. Geneva: WHO; 2011. [\[PDF\]](#)

Acknowledgments

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