

GETTING PRODUCTS TO PEOPLE

The JSI Framework for
Integrated Supply Chain
Management in Public Health



John Snow, Inc.

“Much of the [world’s] burden of disease can be prevented or cured with known, affordable technologies. The problem is getting drugs, vaccines, information and other forms of prevention, care or treatment—on time, reliably, in sufficient quantity and at reasonable cost—to those who need them.”

—World Health Organization (WHO)

A strong health system cannot function without a well-designed, well-operated, and well-maintained supply chain management system—one that can ensure an adequate supply of essential health commodities to the clients who need them.

With more than 30 years of experience in public health supply chain management, John Snow, Inc. (JSI) offers an innovative approach, which draws from commercial sector best practices, to solve supply chain management problems in the public health sector. By applying a framework of solutions spanning the breadth of the supply chain from procurement to the last mile, tailored to local needs, JSI delivers sustainable results in challenging environments.



{ A new approach to end-to-end integration is necessary for public health supply chains to succeed in an increasingly complex environment. }

A Changing Environment for Public Health Supply Chains

Public health supply chains are under rising pressure to operate efficiently. With large-scale investments in health programs, a widening portfolio and volume of products, and expansion of services to new populations, supply chains must be flexible and responsive in this changing environment. Simultaneously, donors and policymakers look for accountability from each link in the supply chain and improvements that can be sustained without indefinite funding.

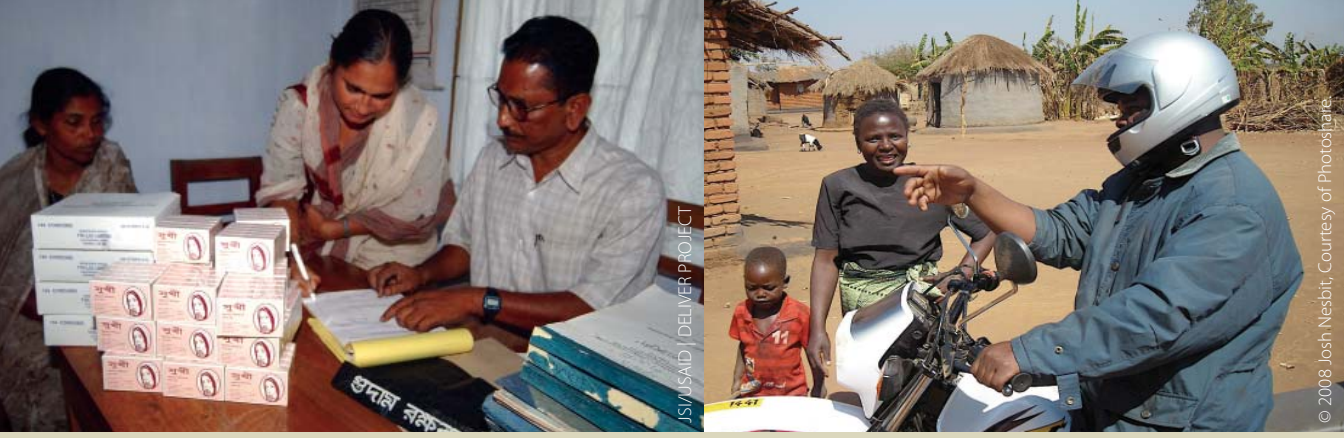
New, more affordable technologies, including mobile phone applications, expanding cell and data networks, and other information systems that connect people, can help countries improve supply chain operations in this increasingly complex environment.

JSI incorporates all of these elements in its supply chain integration framework. This strategic framework is based on transformations that have taken place in the commercial sector in recent years, as well as JSI's extensive experience in strengthening supply chains in developing countries.

CHANGES IN THE SUPPLY CHAIN



Source: John Snow, Inc.



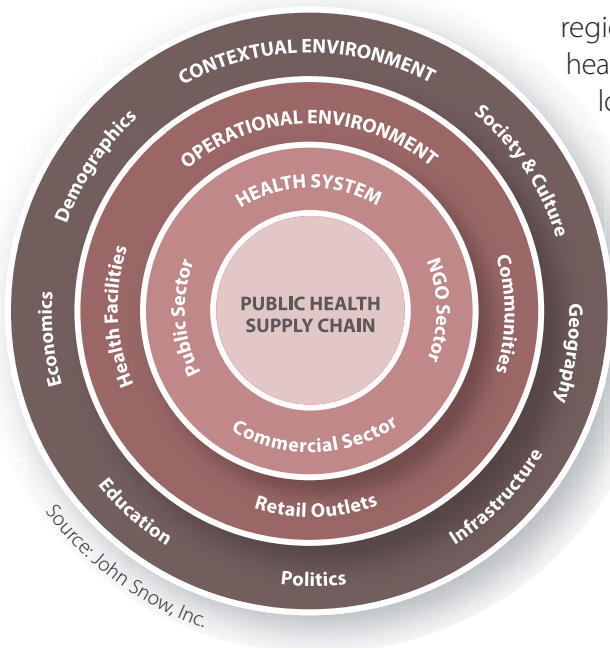
What is a Public Health Supply Chain?

A public health supply chain is a network of interconnected organizations or actors that ensures the availability of health commodities to the people who need them.

Organizations in the supply chain often include departments of ministries of health (procurement, planning, drug regulatory board, human resources, and health programs); central medical stores; donors; nongovernmental organizations (NGOs); regions and districts; health facilities; teams of community health workers; and private sector partners, such as third-party logistics providers, drug manufacturers, distributors, and private service providers.

This network of actors is nested within a country's health system and the operational and contextual environments. Supply chains must satisfy demand for essential health commodities across sectors (public, private, and nongovernmental) and operate at each level in the system—in central warehouses, districts, facilities, and communities. Supply chains are impacted by political, economic, and human resource factors that can constrain or enable them to deliver supplies to clients.

A PUBLIC HEALTH SUPPLY CHAIN IS PART OF A BROADER CONTEXT





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JSI/USAID | DELIVER PROJECT

Integrated Supply Chain Management— A Key to Health System Strengthening

Supply chain management is part of a well-functioning health system. In strong health systems, supply chains respond to the requirements and goals dictated by the broad public health institution, operational environment, and society in which these supply chains operate.

JSI's framework for integrated supply chain management is built on the following principles that support health system strengthening in developing countries—

- Identifying locally appropriate solutions
- Strengthening local organizations
- Maximizing effective use of resources
- Improving commodity availability.

Integrated supply chains have collateral benefits for a health system. A cohesive, well-performing public health supply chain helps build the foundation for a strong pharmaceutical management system, provides essential information for managing health programs and financing mechanisms, and helps to achieve the level of accountability exemplified in the commercial sector.

{ Supply chain integration can be as transformative in the public health sector as it has been in the commercial sector. }

Applying the Commercial Model to the Public Sector

In the commercial sector, an integrated supply chain has visibility of information and activity up and down the chain, fewer steps in its processes, and greater coordination and predictability of demand between all the levels and actors in the system.

Integration has transformed the way commercial companies run their supply chains and businesses, leveraging tools of the modern information age and building stronger teams. Today, companies like Apple, Proctor & Gamble, and Wal-Mart are informed the minute a product moves off the shelf, and they can serve their customers' needs in ways they never imagined, even a decade ago.

Public health systems in resource-limited settings are very different than private companies. Yet, public health supply chain managers face many of the same challenges as commercial supply chains did a few years ago, and now they have access to similar technologies.



Zimbabwe

Improving product availability with an adapted approach to vendor-managed inventory

To ensure product availability the USAID | DELIVER PROJECT and its partners created the “Delivery Team Topping Up” (DTTU) system, adapting a vendor-managed inventory approach used successfully in the commercial sector.

This delivery system streamlines ordering and reporting processes by letting the vendor manage the inventory at health facilities. A delivery truck loaded with supplies arrives at the facility; the delivery team then counts the stock and tops up inventory levels. By bringing the source of supply (the delivery truck) closer to the source of demand (the health facility), and streamlining the steps and processes in between, this system results in a more efficient flow of commodities and information.

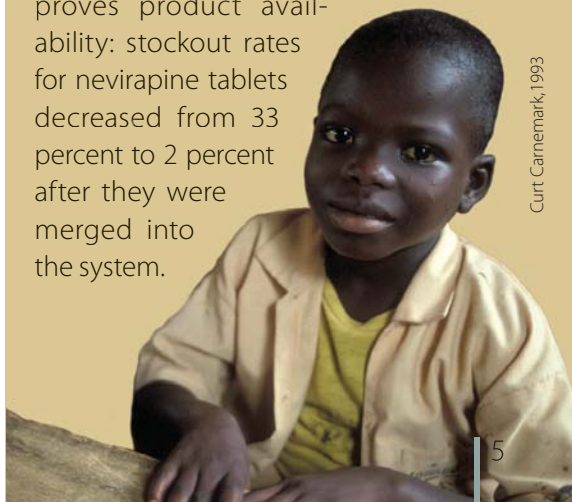
Health personnel no longer spend time counting and ordering inventory; they can spend more time taking care of patients, resulting in better service. The DTTU system significantly improves product availability: stockout rates for nevirapine tablets decreased from 33 percent to 2 percent after they were merged into the system.

JSI adapted the principles and practices that drove the commercial sector’s supply chain transformation and applied them to the public health setting, including—

- streamlining processes
- better inventory accounting
- breaking down functional silos
- increasing supply chain information visibility
- using technology (people, processes, and data) to inform decisions and increase efficiency
- building teams between actors involved in end-to-end supply chain management
- fostering organization-wide commitment to better meet the dynamic needs of their customers.

Integration has helped companies learn to deliver good quality products efficiently, on time, and securely to their customers. These improvements have translated into increased profits, more viable companies, and better customer service.

With the right approach, integrated supply chains can be as transformative in the public health sector as they have been in the commercial sector, delivering greater coverage, better use of resources, and higher quality of care.



Curt Carnemark, 1993

{ An integrated supply chain is cost-effective, agile, and reliable, yielding lower stockout rates, reduced costs, and better order fulfillment rates. }

What is Integrated Supply Chain Management for Public Health?

An integrated supply chain links all the actors involved in managing essential health commodities into one cohesive supply chain management organization. Integration helps clients access quality healthcare services and supplies.

An integrated supply chain management organization has the capacity to learn from errors, self-assess, and adapt through continuous improvement processes.

It leverages resources from all parts of the supply chain and enables rational implementation of innovative new technologies.

People managing integrated supply chains use data about products, costs, and customers to make decisions and to optimize performance across functions, levels, and partners.

- **Functions** in an integrated supply chain (for example, product selection, procurement, storage, and distribution) are all steps in an interconnected process. Program managers must use logistics data during the quantification process to procure the right quantities of products. Likewise, product selection can have an impact on storage and distribution, as the attributes of products can influence warehouse and transportation requirements.

THE INTEGRATED PUBLIC HEALTH SUPPLY CHAIN LINKS FUNDERS AND SUPPLIERS TO CUSTOMERS

- People at different **levels** of the system (central, regional, district, and health facilities) carry out various supply chain management activities and must understand how they link to others in the supply chain. When central warehouse managers are aware of reporting requirements and processes carried out by personnel at the facility level, it helps them to anticipate the information they will need to prepare to pick and pack orders.
- **Partners** across programs, organizations, and sectors must learn to work together in a coordinated way. When international donors harmonize the data they require from national supply chain managers, it allows busy health system staff to streamline their information systems and focus on other important tasks.

An integrated approach to supply chain management takes a whole-system perspective, rather than looking at separate functions—such as a logistics management information system (LMIS) or warehousing, or separate programs—such as HIV and AIDS or malaria or separate levels—such as central or regional. Integration results in a more cost-effective, agile, and reliable supply chain, yielding lower stockout rates, reduced costs, and better order fulfillment rates.





Liberia

Clarifying roles and responsibilities with a supply chain master plan

After more than a decade of civil war, international partners set up parallel supply chains to deliver health commodities, leading to fragmentation and lack of coordination among the many supply chain actors.

The Ministry of Health and Social Welfare led a supply chain master planning process, supported by the United States Agency for International Development and the Global Fund to Fight AIDS, Tuberculosis, and Malaria. Through this process, individuals and organizations agreed on a supply chain strategy and a coordinated plan for supply chain system strengthening.

Defining the roles and responsibilities of various entities in the supply chain within the context of a common plan ensures that efforts are coordinated and aligned across organizations in the public health supply chain.

What are the Characteristics of an Integrated Supply Chain?

Integrated supply chains demonstrate six key attributes—

- **Clarity of roles and responsibilities:** Roles, responsibilities, and processes (such as reporting or resupply procedures) are established and publicized throughout the supply chain.
- **Agility:** Logistics functions are performed quickly, accurately, and effectively so products, information, and decisions can move swiftly through the supply chain to respond promptly to customer needs.
- **Streamlined processes:** Bureaucratic hurdles and processes that impede the flow of information and commodities are eliminated.
- **Visibility of information:** Data are visible throughout the supply chain, usually through computerization, so stakeholders at different levels can see where products are and what the demand is, and use this information to better meet customers' needs.
- **Trust and collaboration:** A collaborative environment exists that can help break down existing functional and organizational barriers to improve supply chain performance.
- **Alignment of objectives:** Organizations and levels have a compatible vision, goals, and objectives to ensure consistency in direction within the supply chain.



How is Supply Chain Integration Different from the Integration You May Know?

Historically, health policymakers have defined integration as the merging of programmatically separate (or vertical) supply chains, often as part of broad health service delivery reforms. Although merging multiple program supply chains may reduce redundancy, it does not necessarily lead to improved product availability.

Instead of merging health program supply chains, JSI promotes supply chain segmentation analysis as a best practice for making rational choices about which products to manage jointly. Segmentation analysis is a process of reviewing and analyzing product and customer characteristics to identify commonalities, then organizing the supply chain into segments to best respond to customer needs and product requirements. Segmentation analysis is an important step in building an integrated supply chain.

Nigeria

Lowering cost through segmentation analysis

Segmentation analysis shows that products may not need to be stored in the same place, delivered on the same truck, or procured in the same way, even if they are offered to the client at the same time. In the commercial sector, it is typical to have many product streams or segments managed through one integrated supply chain.

The USAID | DELIVER PROJECT supported the piloting of the segmentation approach in Edo State. Supply chain managers analyzed the essential medicines flowing through the supply chain system. The analysis found that certain products were consumed at higher volumes and more frequently than others.

Based on this data, the commissioner of health and his colleagues decided to begin procuring high volume, high frequency products in large batches and through longer-term contracts, saving time and money.

Bangladesh

Improving accountability by making data more visible

Bangladesh's 5,000 family welfare centers and 23,500 family welfare assistants who go door-to-door with contraceptives rely on the country's upazila stores for their supplies. Until 2007, tracking inventory and reporting activity to the regional warehouse was a manual, labor-intensive task for staff at each of the 483 upazila stores. Each storekeeper had to work with 25–30 forms to report to the regional warehouse.

To modernize the system, the Upazila Inventory Management System (UIMS) software was developed with support from the USAID | DELIVER PROJECT. The UIMS reduced reporting times, ensured accuracy in recordkeeping and reporting, and helped the storekeepers adhere to first-to-expire, first-out principles, which lowered the amount of product wasted due to expiry. Most importantly, this system provided supply chain managers with real time data to make decisions and respond quickly to stock situations.

Supply Chain Evolution—the Path to Integration

Countries typically move through an evolution process to achieve an integrated public health supply chain. While every country is different, the path to integration generally goes through three sequential phases.

1) Ad hoc phase

Stakeholders have little common understanding of what the supply chain looks like and have no formal procedures for its operation, leading to fragmented supply chain efforts across various entities in the system.

2) Organized phase

Standardized supply chain systems, including LMIS, are designed and implemented, roles and procedures for basic logistics functions are clarified, and sufficient financial and human resources are mobilized to operate the system.

3) Integrated phase

People, functions, levels, and entities of the supply chain are linked and managed under an interconnected supply chain organization. Supply chain managers are empowered and understand how to collect and use information to map the system and streamline processes, use resources more effectively and efficiently, monitor and improve performance, and align various supply chain partners to achieve common goals.

(Adapted from Lockamy III, Archie, and Kevin McCormack. 2004. "The Development of a Supply Chain Management Process Maturity Model Using the Concepts of Business Process Orientation." *Supply Chain Management: An International Journal*, vol. 9 no. 4: 272-8.)

For countries to go from one phase to the next, they must undertake specific activities to organize, strengthen, and align the system.

Moving from Ad Hoc to Organized

- Assess as-is system using process mapping, network optimization, and costing analysis
- Undertake technology assessments to improve information for decisionmaking
- Employ system design process for all logistics functions and products using segmentation analysis
- Roll out system, including logistics training and dissemination of job descriptions, standard operating procedures, and supervision guidelines
- Perform regular quantification of commodities.

Moving from Organized to Integrated

- Create a logistics management unit and establish central level technical groups and committees
- Professionalize supply chain managers
- Optimize performance with analysis and design tools
- Introduce flexible procurement processes
- Diversify financing schedules and sources
- Strengthen automated processes for data aggregation, analysis, and sharing
- Generate and publish routine logistics reports
- Develop performance management plans with indicators and incentives.

Nicaragua

Institutionalizing supply chain management by empowering people

The Ministry of Health (MOH) has worked to institutionalize supply chain management and manage products through an integrated supply chain.

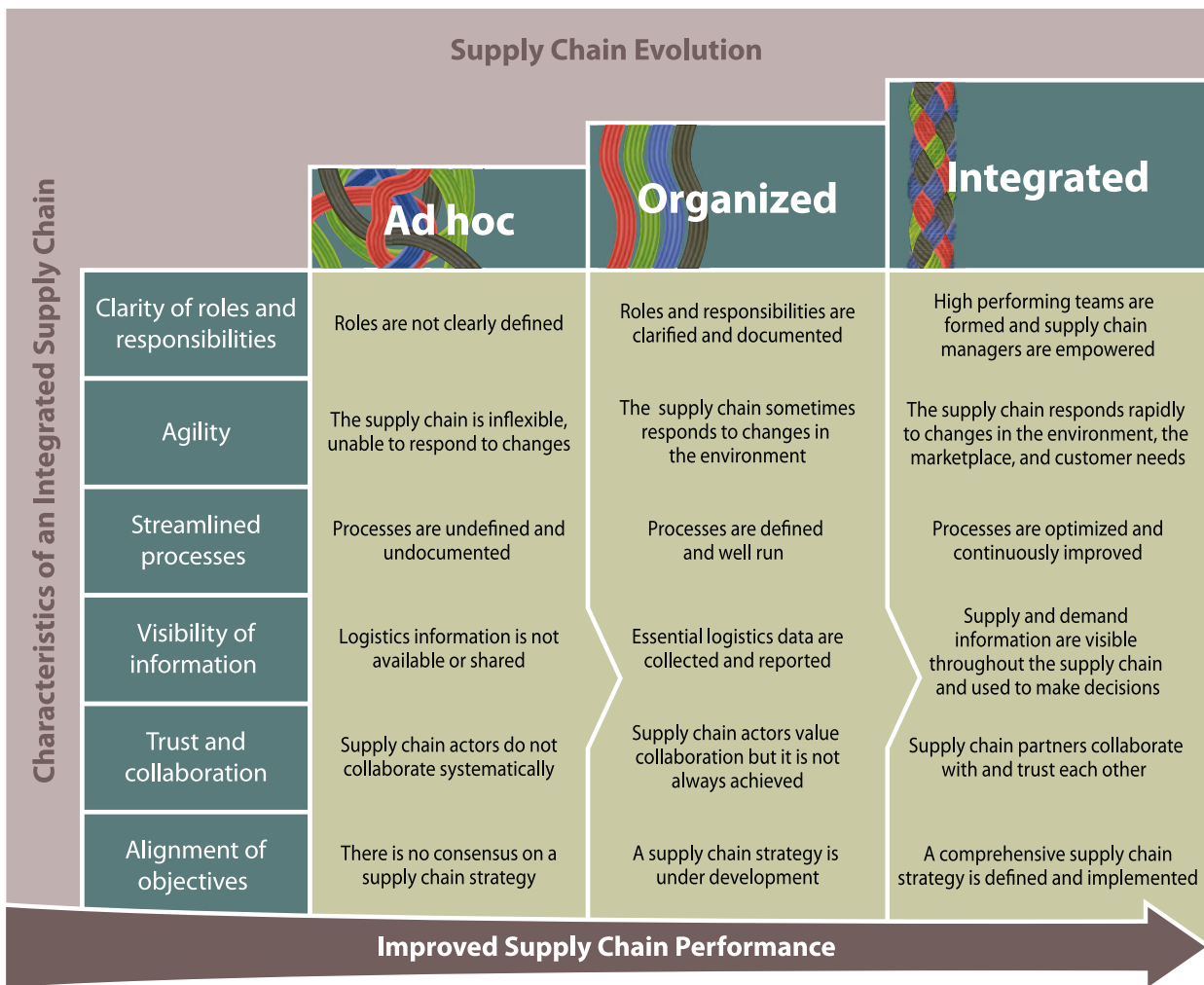
Recognizing a need to build a body of health supply chain managers who can focus on making quality commodities available to clients, the MOH strengthened and expanded the role of the essential medicines supervisor, a pharmacist/logistician, to make all commodity management decisions from the regional level to the service delivery points.

Because supervisors collect and use supply and demand data from all health system levels, regional directors now consult this cadre of supply chain managers regularly to identify and resolve broad health management issues.



Getting Products to People: The Supply Chain Integration Framework

Supply chain integration helps manage complexity and strengthens health programs. As the supply chain organization matures it increasingly demonstrates the six characteristics of an integrated supply chain. The organization can oversee all functions, levels, and partners, ensuring an adequate supply of essential health commodities to the clients who need them.



Source: John Snow, Inc.

JSI: Promoting and Improving Health

John Snow, Inc. (JSI) is dedicated to improving the health of individuals and communities in the United States and around the world. Our mission is to work with clients to improve the quality of their operations. Founded in 1978 and headquartered in Boston, Massachusetts, JSI provides an extensive range of research and consulting services to public health programs in more than 100 countries.

JSI is a global leader in supply chain management for essential health products and has been instrumental in increasing policymakers' and program managers' recognition of the need to ensure availability of quality supplies for critical public health programs.

JSI has supported health supply chain strengthening efforts in more than 40 countries and has provided supply chain management training to more than 100,000 people worldwide. With staff located in over 20 countries and a large professional team of experts, JSI provides a wide array of both long- and short-term technical assistance to improve health supply chains around the world.



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