



Supply Chain Management E-Newsletter

Quarter 2, 2008

Welcome to the Quarter 2, 2008 installment of the quarterly USAID | DELIVER PROJECT Supply Chain Management E-Newsletter. The e-newsletter includes articles on supply chain best practices, public and private sector supply chain technology, project topics, and descriptions and evaluations of pilot programs.

The team welcomes your input! To submit an idea for a future newsletter, or to share information with our readers, please contact James Gibney, Technical Advisor, at jgibney@jsi.com, or Suzy Sacher, Program Officer, at ssacher@jsi.com

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Segmentation: A Supply Chain Strategy for Efficient Management

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Use a Transportation Management System to Maximize Resources

Transportation and warehousing are the heart of any supply chain. Especially with the recent rising fuel prices, the budget for transportation is one of the largest, and hardest, to manage. New ways to reduce costs and improve the performance of transportation will undoubtedly improve the overall performance of the supply chain and possibly free resources for service delivery. See below to read the full article.

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Spotlight on Uganda: Delivery System Improvements Pilot

To ensure that supplies reach facilities in Uganda when and where they are needed, the Uganda National Medical Stores is testing a change in their transport delivery system. Under the old system, facilities waited at least eight weeks between the time they placed an order and received what they ordered. The stores had to make many emergency orders because of the long lead time, as well as other delays in the system. If the changes instituted in the January through June 2008 pilot are successful, the National Medical Stores will make deliveries every month instead of bimonthly. See below to read the full article.

Uganda: Mapping the Distribution of Non-Health Commodities to the Last Mile

Distribution of Commercial Goods Along the North Shore of Lake Kwania

Have you ever wondered how some products make it to even the most remote locations? From February 18–20, 2008, John Durgavich from the USAID | DELIVER PROJECT, Betty Nabirumbi from USAID, and Simon Ochaka, an interpreter, collected data along the North Shore of Lake Kwania, Apac District, Uganda. The team held focus group discussions and key informant interviews to determine the availability, cost, and use of a variety of products, including cooking oil, salt, beer, matches, lotions, soap, airtime cards, condoms, water treatment tablets, toothpaste, and paracetamol. The team interviewed five manufacturers in Kampala to learn more about the distribution chain from the supplier's perspective.



The Nursing Aide in Te-ilwa makes a 60 km round trip to Apac on her bicycle every week to keep her clinic stocked.

During the study, the team mapped the distribution of a select number of non-health goods that are regularly available in remote areas of a country; they wanted to determine how to apply this distribution system to contraceptives or other health commodities.

The team investigated—

- the distribution process from the national capital or district capital to the village/remote area
- motivational factors that ensure product availability, i.e., the importance of the commodity to the community and the profit made by the seller
- applicability of these distribution processes to health goods.

Food, fabric, fertilizer, water pumps, and other vital goods, and what some consider luxury items, such as soft drinks and cigarettes, are routinely available in remote areas; they are delivered through supply chains that function in the farthest reaches of a country. Some goods flow within the formal economic sector—

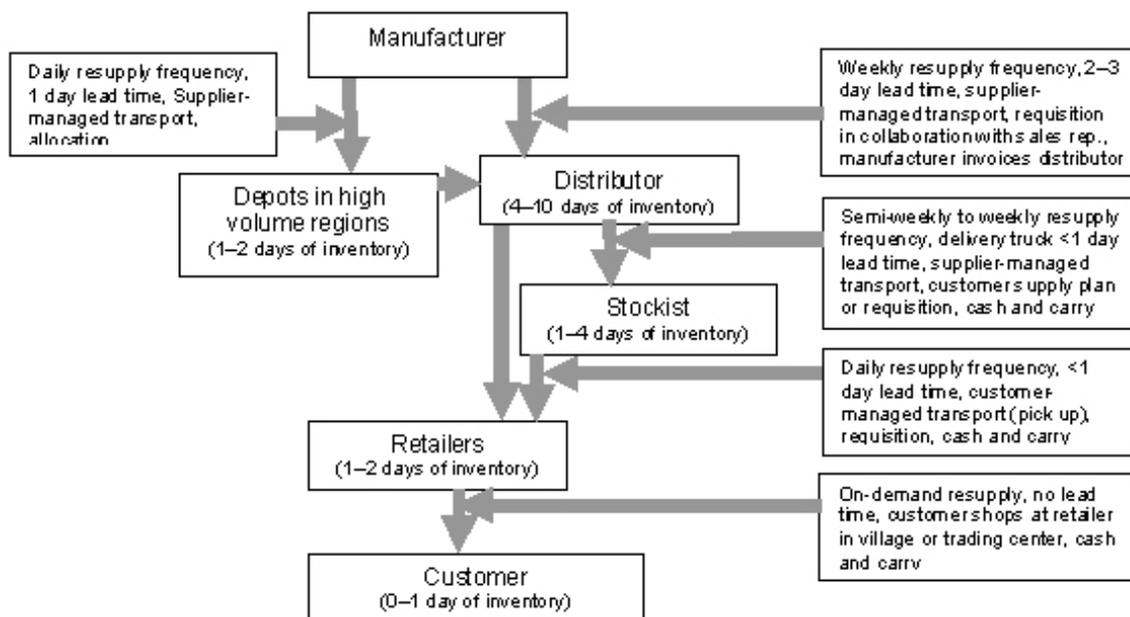
soft drinks, for example—while others may reach the village level through informal channels. Whatever the mechanism, some goods are always available in remote areas, while the availability of other goods is less reliable.

The last mile is not strictly a distribution or access problem, and the mile to be covered is not limited to physical distance. In the telecommunications industry, the mile might be convincing a new cell phone client to obtain a handset, even offering handsets at reduced or “no-cost,” making access less a problem of physical distance than of motivating the customer. Similarly, for immunizations, a mobile outreach might be able to deliver effective vaccines and safe injection equipment to an outreach center like a school or clinic, or even door-to-door, but coverage depends on parents closing the gap. For goods that include contraceptives, vitamin A, bed nets, and water purification tablets, community outreach and social marketing programs often help close the last mile gap through subsidized, under-market pricing, and product promotion. The last mile gap is not distance: it is access and client motivation. Every successful enterprise must work to close this gap.

In general, Ugandan manufacturers and central distributors, including distributors like the National Medical Stores, can move large volumes over long distances (usually over better roads); achieving economies of scale by sharing costs among thousands of customers. At the other extreme, locally optimized distribution moves small volumes over shorter distances to serve a small pool of customers, who typically, pay more for their products. In retail, demand and customer satisfaction signals are strong at the local level but are more challenging to acquire and interpret at the distributor and manufacturer levels.

In general, the resupply frequencies are much higher for a village retailer than for a health center—one to two weeks instead of two to three months. However, village retailers usually handle fewer than 50 low-value/high-volume products. Distributors interviewed during the data collection handle as few as three and as many as 240 products.

It is not surprising that the village retailers are motivated by the profit margin, but retailers are also concerned about responsibility to their community and responsiveness to customers.



As the figure above shows, retailers can hold a smaller inventory because they can resupply their stores in one day and because they resupply frequently; however, middle tiers—for example, distributors—hold much more inventory. Interestingly, the private sector has as many or more distribution tiers (4–5) as the public sector, but with very short lead times have much shorter pipelines. Because each supplier may have a different rationale for distributor locations, integration for one-stop shopping generally occurs at the stockist level.

Initial key best practices identified from commercial distribution in Uganda include—

- good control of retail and wholesale pricing to the trade center-level through price lists and reinforcement by distributors and manufacturer sales representatives
- sales data monitoring, to at least one tier below
- short lead times, typically one day or less
- low inventory levels/high turnover (little/no expiry)
- third-party contracting for transportation, transportation performance metrics, and contract compliance
- bulk fuel purchasing.

General Conclusions

- In resource-poor settings, commodities flow when there is an economic interest, but, at times, even basic goods can be stocked out.
- Real costs are associated with storage and distribution to the last mile; village retailers address these independently, rather than collectively.
- At the village level, retailers know that their customers have little or no choice about where they purchase goods. The retailers have minimal motivation to improve services or to cut prices, but local merchants are under social pressure to provide reasonable product availability without price gouging.
- In Uganda, customers, as well as people working at every distribution node, are capable of developing creative solutions to problems that affect their business.
- The public sector can learn from the local private sector practices in transportation and inventory management.

Segmentation: A Supply Chain Strategy for Efficient Management

Companies throughout the world segment their supply chains to improve performance. Many diverse companies, such as the suppliers of auto parts, telecommunications, or grocery supplies, know that a one-size-fits-all supply chain strategy does not work; they also know that it often results in low customer satisfaction. It is easy to understand why some products—pharmaceuticals, for example—require a different supply chain than fashion apparel. But, what happens within a specific industry? More and more, companies are beginning to realize that all products cannot and should not be uniformly managed; these companies are turning to segmentation as a solution. However, they have also discovered that what works for one company or industry will not necessarily work for another.

What is segmentation? Segmenting means more than analyzing the products and customers of a particular supply chain; it also means analyzing the environment or context within which the supply chain operates and reorganizing that supply chain into logistically distinct segments. Segmentation is often the best option when the environment becomes overly complex. International public health supply chain management may be a good candidate for segmentation because it is growing more and more complex. In some cases, vertical supply chains are being integrated; in other cases, such as the management of HIV/AIDS, malaria, and tuberculosis, increased funding is becoming available to procure large quantities of products, many of them relatively new to the country. This situation can often result in new pressures for procurement, quantification, warehousing, transportation, and inventory management. Not only do the products have different characteristics (shelf-life, cold or cool chain requirements, treated with insecticide, etc.), they can also have different requirements, depending on where they will be dispensed.



Warehouse in Tanzania

For example, A. T. Kearny, a management consulting firm based in Chicago, developed a framework for implementing the segmentation process. They list four steps in their 2004 article, “How Many Supply Chains Do You Need? Matching Supply Chain Strategies to Products and Customers.”¹

- *Identify relevant supply chain segments.* An analysis of the supply chain, based on segmentation variables, should result in a clear understanding of the logistical differences between the products and the customers. Unfortunately, no one formula fits all cases; traditional market segmentation variables—size, location, and type of business/products—may not be applicable. At this point, it is advisable to think outside the box; this can result in the discovery of new types of segments that require innovative strategies.
- *Construct logically distinct supply chains.* The key to following this advice is to strike a balance. Too many segments will be costly and overly complex, as each segment could require its own strategy. Having too few segments can lead to applying the one-size-fits-all strategy, possibly resulting in poor customer service and incurring unnecessary costs. In this step, it is important to define a clear strategic focus for each supply chain/segment. Some important questions relate to the speed of delivery and cost and the flexibility to change the products or the volume. Other questions relate more to improving competitiveness.

- *Match strategies to the supply chains.* Each supply chain/segment should have a different strategy, i.e., supply, inventory management, transport, and warehousing policies. While products in the differentiated segments are managed differently, they can still share resources, such as storage and transport.
- *Define a reconfiguration plan.* This is the implementation stage of the new strategy. The two elements that will determine the extent of the reconfiguration are (1) determining the current mismatches, such as redundant processes, overlaps, and inconsistencies; and (2) both estimating and capturing the value of synergies across segments.

In international public health supply chain management, some segmentation is already taking place. Important factors, such as balancing the length of pipeline versus short shelf-life products, come into play on a regular basis. In fact, family planning products, antiretrovirals (ARVs), and insecticide-treated bed nets are all managed differently because of their logistical distinctions.

The segmentation process provides a framework for making rational decisions on how to best manage the different products, based on specific criteria/variables. The goal is to introduce greater agility, flexibility, and resilience to public health supply chains, thus ensuring that countries can meet the growing demands of integration, complexity, and introduction of new products, while improving efficiency and the use of scarce resources.

¹ Kearny, A. T. 2008. "How Many Supply Chains Do You Need? Matching Supply Chain Strategies to Products and Customers." Atlanta: A. T. Kearny. Accessed on May 15, 2008, at <http://www.atkearney.com/main.taf?p=5,3,1,72>.

Use of a Transportation Management System to Maximize Resources

Managers may ask—What factors influence our transport costs? Are we leveraging our transportation budget effectively? How are we performing? What can we do to improve how we manage and control these costs?

Transportation and warehousing are the heart of any supply chain. Especially with the recent rising fuel prices, the budget for transportation is one of the largest, and hardest, to manage. New ways to reduce costs and improve the performance of transportation will undoubtedly improve the overall performance of the supply chain and possibly free resources for service delivery.

By developing and implementing a transportation management system (TMS), managers can answer the above questions, increase their service levels, and control their costs.

What is a TMS? An Internet search for TMS brings up many sophisticated computer programs, but a well-functioning TMS



Delivery truck in Nepal

does not have to be software-based. Instead, a TMS can be a simple set of standard operating procedures (SOPs) to manage vehicles, spare parts, drivers, and mechanics.

SOPs provide a framework of rules that maximize resources, based on the needs and constraints of your supply chain.

They should include a—

- realistic plan for maintaining vehicles
- delivery schedule that optimizes vehicle use, which will reduce fuel and maintenance costs
- set of procedures for managing drivers and mechanics.

Many organizations that work in developing countries face transportation challenges and seek solutions that fit their situations. One nongovernmental organization (NGO), Transaid, which is dedicated to transportation management in developing countries, works with ministries of health and other entities to improve product availability. On their website (www.transaid.org), they list a set of five focus areas for supply chain managers to consider when developing or implementing a TMS:

- *Management information.* To identify major constraints and successes in transportation efficiency, conduct a situation analysis for fleet performance.
- *Policy.* To create policies, use a participatory process; put regular reviews in place.
- *Fleet management.* To correctly manage the fleet and maximize the life of the vehicles, ensure that fleet specification, maintenance, and replacement data are in order.
- *Operational management.* To ensure that staff know who is responsible for doing what and how various responsibilities are to be fulfilled, institute operational management; for example, the system for allocating vehicles.
- *Human resources.* To help contribute to its success, ensure that all personnel understand and support the TMS procedures.

A quote from Transaid's website underscores the importance of effective transportation management systems.

“Non-delivery of healthcare and other basic services is often attributed to lack of available transport. However, when more vehicles are funded, increases in service delivery often fail to materialize because the systems that underpin their operation are absent. Effective management of current vehicles can improve service delivery without large capital outlays and can help investment in new vehicles in the future go further.”

Spotlight on Uganda: Delivery System Improvements Pilot

To ensure that supplies reach facilities in Uganda when and where they are needed, the Uganda National Medical Stores is testing a change in their transport delivery system. If the January through June 2008 pilot is successful, the National Medical Stores will make deliveries every month instead of bimonthly.

Under the old system, facilities waited at least eight weeks between the time they placed an order and received what they ordered. The stores had to make many emergency orders because of the long lead time, as well as other delays in the system. The excessive time between order placement and delivery meant that additional problems remained hidden for long periods of time.

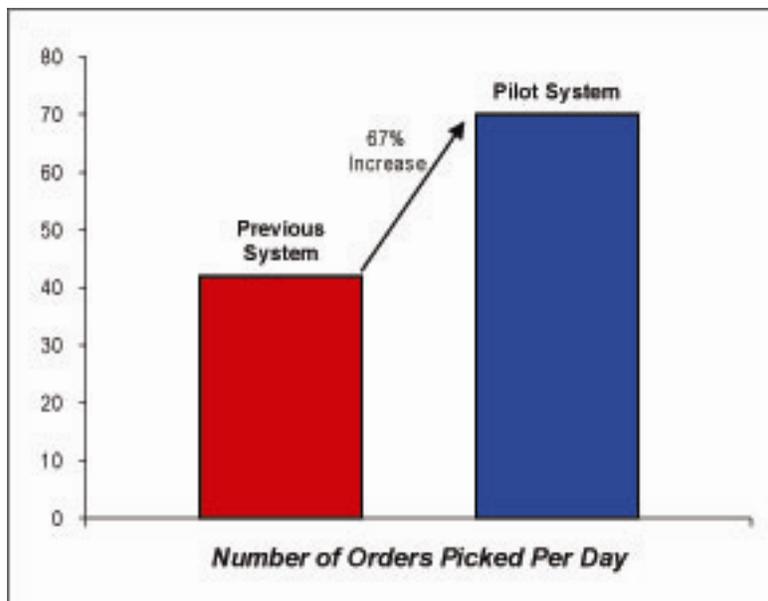
To improve the situation and ensure more frequent deliveries, the Uganda National Medical Stores instituted many changes, shown in the following chart.

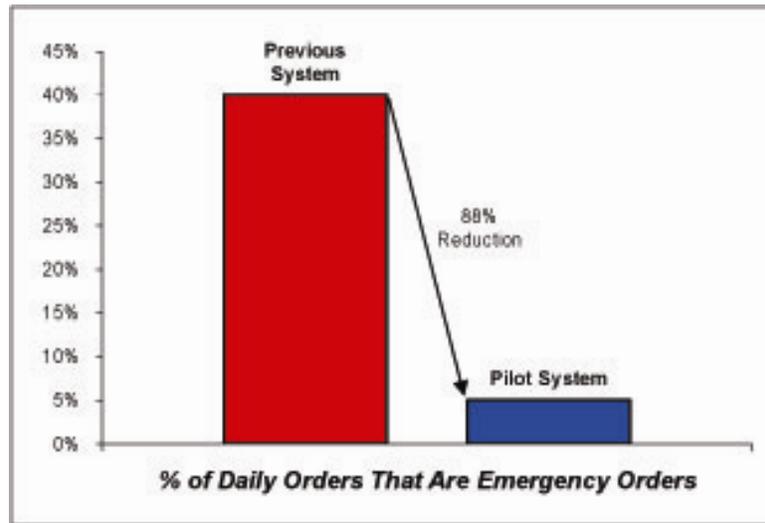
Procedure	Previous System	Pilot System
Responsibility for and access to stock	Stores assistant was responsible for all stock in locations within the store, but all staff could pick items from any location. This led to much time and energy spent moving around locations looking for items.	Each person is assigned to a specific location where they pick items and monitor inventory. This should increase ownership, accountability, and efficiency.
Responsibility for orders	Each person was assigned 7 orders to process per day; 42 orders were completed by each team of 6 people.	70 orders are assigned daily to each store bay for picking as a team. (Teams include 7 pickers, 2 checkers, and 2 packers; they are supervised by 1 stores assistant, who is in charge of the storage bay.)
Emergency orders	Over 40% of orders processed each day were outside the planned schedule. <i>Urgent</i> and <i>emergency</i> orders caused significant changes to the plan.	No more than 4 orders per day are allowed outside the normal processing & delivery schedule. These are less than 5% of orders and most are for private health facilities.
Processing by region	All orders from the entire country were accepted and processed at the same time, thereby creating an unacceptable number of works-in-progress.	One region of the country is handled at a time. Each of the five regions of the country can be supplied once every month.
Location of quality control checking	Quality control checking was carried out within the packing bay. This created an illogical work flow for both checking and packing functions; and led to delays, too much work-in-progress, and was a poor use of space.	All picking, checking, and packing activities are done within the storage bays. Time spent between successive processes decreased from a lag of 1 day between each of the 3 core activities to an average of 2 hours.

Use of various stores	Items for picking were scattered between 5 stores. Merging picked items to make up an order was a challenge.	Stopped all picking and packing in 3 external stores and focused major processing activities in just 2 stores. This improved monitoring and control of activities.
Stock replenishment	Stock replenishment occurred after items were ordered. Orders were kept waiting as works-in-progress because of delayed delivery of replenishment stock.	Replenishment reports are generated weekly to aid in planning of stock replenishment.

During the pilot testing, a Kanban system was implemented. This system uses visual signals to control the flow of packed orders from the packing to the dispatch areas. It has decreased the backlog of orders in the dispatch. Monitoring and collaborative measures have also been put in place to improve delivery system performance. As a result of the regular meetings and performance feedback, the shop floor staff has offered additional suggestions and innovations.

Since the monthly delivery schedule pilot began in January, deliveries have been on time, or with just a week's delay. A more frequent, dependable delivery schedule has helped facilitate a continuous supply of medicines where they are needed.





Despite the improvements already seen with the new delivery system (and the praise from various district health officers), the Uganda National Medical Stores continues to plan for additional improvements.

They would like to—

- switch to an upgraded inventory computer system
- use shrink/stretch-wrapped packed orders to decrease loading and offloading time
- rearrange racks to facilitate picking from lower-level racks (to save time)
- introduce regional distribution centers across the country to bring supplies closer to health units
- revise the units of issue to minimum unit of sale for all items to prevent the unnecessary opening of cartons and to enable faster picking and packing.

Congratulations to Uganda for the significant steps they have taken to improve their delivery system. We look forward to the final results of the pilot and the next steps!

The authors' views expressed in this publication do not necessarily reflect the views of the United States Agency for International Development or the United States Government.

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