USAID MEDICINES, TECHNOLOGIES, AND PHARMACEUTICAL SERVICES (MTaPS) PROGRAM

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Leveraging Private-Sector Logistics Providers in Supporting Public Health Supply Chains in the Philippines

A political economy, operational capability, and cost-benefit analysis

September 2022

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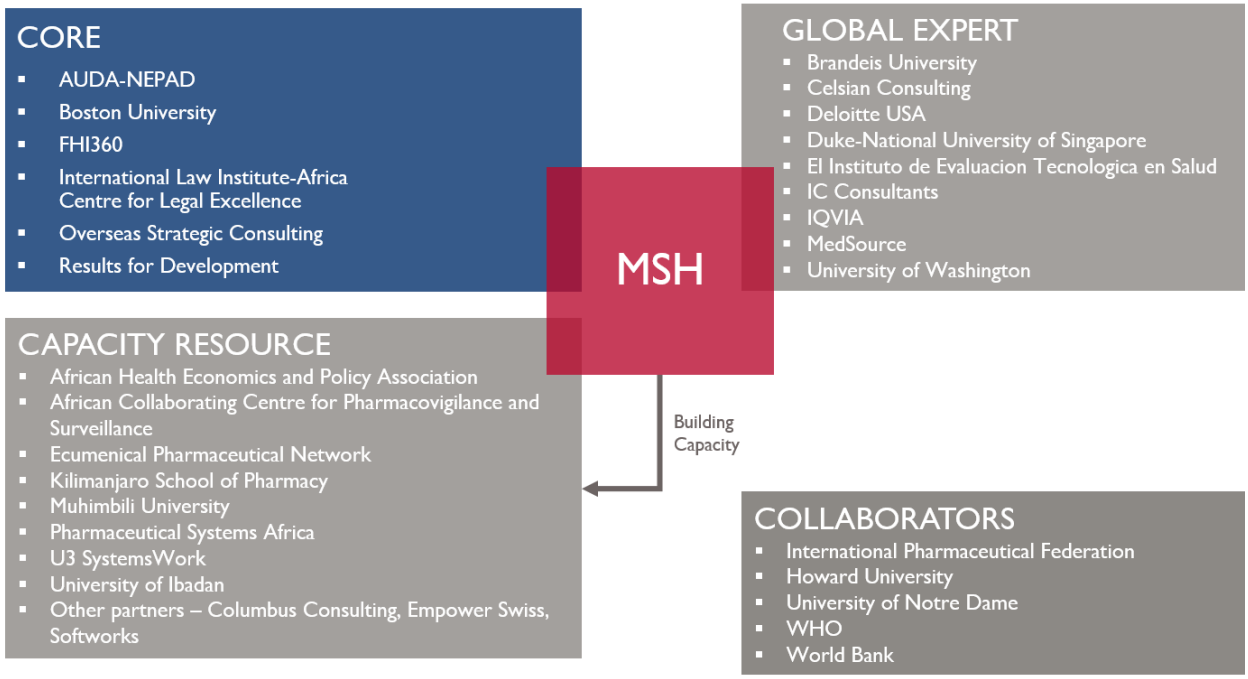
About the USAID MTaPS Program

The USAID Medicines, Technologies, and Pharmaceutical Services (MTaPS) Program enables low- and middle-income countries to strengthen their pharmaceutical systems, which is pivotal to higher-performing health systems. MTaPS focuses on improving access to essential medical products and related services and on the appropriate use of medicines to ensure better health outcomes for all populations. The program brings expertise honed over decades of seminal pharmaceutical systems experience across more than 40 countries. The MTaPS approach builds sustainable gains in countries by including all actors in health care—government, civil society, the private sector, and academia. The program is implemented by a consortium of global and local partners and led by Management Sciences for Health (MSH), a global health nonprofit.

The MTaPS Consortium



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ACRONYMS AND ABBREVIATIONS

3PL	third-party logistics
4PL	fourth-party logistics
CCW	central contraceptive warehouse
CHD	Center for Health and Development
CMS	Central Medical Store
DCI	Distribution Concepts International
DPCB	Disease Prevention and Control Bureau
DOH	Department of Health
FP	family planning
FWA	framework analysis
GDP	Good Distribution Practice
GPS	global positioning system
GWP	Good Warehousing Practice
KPI	key performance indicator
LGU	local government unit
LLP	lead logistics service provider
LMICs	low- and middle-income countries
LMIS	logistics management information system
M&E	monitoring and evaluation
MLGU	municipal government unit
MTaPS	Medicines, Technologies, and Pharmaceutical Services
NCR	National Capital Region
OCAT	operational capability assessment tool
PEA	political economy analysis
POD	proof of delivery
POPCOM	Commission on Population and Development
PPPI	Philippines Pharma Procurement Inc.
RPEA	rapid political economy analysis
SCM	supply chain management
SDP	service delivery point
SLA	service-level agreement
SOP	standard operating procedure
USAID	US Agency for International Development

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Program Name:		USAID Medicines, Technologies, and Pharmaceutical Services (MTaPS) Program
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	Capacity Resource Partners	African Health Economics and Policy Association, Ecumenical Pharmaceutical Network, U3 SystemsWork, University of Ibadan, University of Ghana's World Health Organizations (WHO) Pharmacovigilance Collaborating Center, Kilimanjaro School of Pharmacy, Muhimbili University, Pharmaceutical Systems Africa
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EXECUTIVE SUMMARY

In 2021 and 2022, the US Agency for International Development (USAID) Medicines, Technologies, and Pharmaceutical Services (MTaPS) Program undertook a study on the political economy (PEA), operational capability, and cost benefit of engaging private-sector fourth-party logistics (4PL) and third-party logistics (3PL) service providers in supporting the public health supply chain. The study was undertaken in the Philippines with both in-country and remote team members.

The dual objectives of the study were to assess:

- The potential for implementing such relationships not only in the Philippines but also in low- and middle-income countries (LMICs) in general
- The motivations, incentives, and constraints to outsourcing as well as the capability of the available logistics service providers and their costs and benefits with regard to delivering the services required by public-sector health care systems

Although outsourcing strategies are deployed in the Philippines, they are traditional fee-for-service contracts that do not reflect global best practice relationships. Briefly, best practice 3PL and 4PL relationships can be defined as follows:

- **3PL**: In developed economies, the title is usually reserved for organizations offering complete in-country operations that embrace both warehousing and transport. Typically, a 3PL provider would have an integrated IT system that incorporates order processing, warehouse management, and transport planning and enables data analysis and the production of performance measures to be undertaken automatically in a timely manner.
- **4PL**: A 4PL provider is defined as a professional logistics company that integrates multiple logistics services (3PLs) to provide clients with an end-to-end strategic view of the supply chain, without necessarily deploying any operational assets of its own. It is supported by an IT system that enables transparency and analytical capabilities for proactive monitoring and continuous improvement.

Typically, a best practice 3PL or 4PL relationship will undertake standard supply chain activities in a collaborative manner and have the following characteristics:

- Longer contract lengths than traditional fee-for-service arrangements
- Defined contacts between the organizational units of the client and the service provider
- Integration of the IT systems of both organizations
- Scheduled reporting at various levels within the organizations
- Standard operating procedures (SOPs) detailing the methods of working for both the client and the logistics service provider

In the Philippines, to obtain a better understanding of current public-sector supply chain costs and service levels, the operational capability of the public and private sectors, and perceptions and factors that influence decision making in both sectors, the following tools were developed and deployed:

- **Rapid political economy analysis (RPEA)** to understand the major political, economic, social, and cultural incentives, motivations, and constraints that impact decision making in both sectors

- **Operational capability assessment** to identify strengths and gaps in the public-sector supply chain and assess the ability of the private sector to provide required services
- **Cost-benefit analysis** to measure current supply chain spending and service levels

These analyses were components of a larger decision framework that informs the decision to adopt a best practice outsourcing strategy using a systematic approach.

The ***RPEA*** involved structured interviews with representatives from the DOH and private-sector logistics service providers. Many of the private-sector organizations that participated in the analysis had worked previously with some areas of government and were willing to engage in an outsourcing capacity. However, hesitations on the part of the private sector included timeliness of payments and the excessive administrative layers involved in dealing with government institutions. The public sector was largely in favor of 3PL provider outsourcing but had mixed opinions regarding 4PL provider engagements. Public-sector reservations regarding 4PL provider engagement were a loss of ownership and control and layoffs. As decentralization of the Philippines health care system continues, a coordinating body like a 4PL provider could be extremely beneficial in preventing a fragmented supply chain.

The operational capability assessment tool (OCAT) was deployed in Bicol Region, Cebu Region, and National Capital Region (NCR). The tool, which is based on a maturity model technique, requires interviewees to score various elements of supply chain activities on a scale of best practice (0 to 4) to assess the location's operational supply chain capability. The interviewees represented a cross-section of supply chain experience and included pharmacists, administrative officers, statisticians, program officers, and procurement officers. While each location had specific issues regarding its operation, the following common areas for improvement were identified:

- The organizational structure and reporting relationships
- Logistics management information systems (LMIS)
- Monitoring and evaluation (M&E) processes
- Technical and physical infrastructure
- Warehousing and distribution

Although the quantification (demand planning) activity was scored poorly by all interviewees, which could result in inventory imbalances within the overall supply chain, the procurement functions were considered to be particularly mature. This performance disparity could result in supply chain inefficiencies.

Most of the private-sector companies interviewed had been in existence for many years and demonstrated considerable experience working with the public sector. While they have not performed 4PL services, they have contracted with the DOH in providing warehousing and transportation of health commodities from the central to lower levels of the supply chain. Despite the data gathering difficulties experienced, there is considerable room for performance improvement in public-sector health care supply chain systems in the areas that were reviewed. It is also clear that the private-sector logistics service provider market has companies able to provide best practice services to the DOH. The

information gained from the study is a valuable starting point for further detailed work that will be necessary to progress the 4PL and best practice 3PL provider discussion in the country.

The cost-benefit analysis obtained data from several sources to estimate the overall cost of operating the public-sector supply chain with regard to the estimated annual procurement spend of ₱20b (USD 400m) on pharmaceuticals and medical supplies at the central DOH. The fragmented supply chain management (SCM) organizational structure made comparisons between current costs and a best practice 3PL or 4PL provider difficult at this stage of the process. However, information in the public domain summarizing 3PL and 4PL provider implementations, from a range of industrial sectors, highlighted annual savings of between 5% and 7%. Many of the examples, particularly the automotive-sector example, relate to situations in which the parties have been working together for some time and the easy savings had been realized several years ago.

Furthermore, while cost savings are an important factor in the decision making process, improved service levels, as a result of deploying the expertise of the logistics service provider, should also be considered.

A decision framework linking the three individual tools was developed to support the DOH as it considered the development of an outsourcing strategy and prepared for the implementation of the strategy should it decide to outsource segment(s) of its supply chain system. The framework facilitates decision making by:

- Evaluating public-sector supply chains
- Determining the potential benefits of an outsourced strategy
- Assessing the capability of potential private-sector logistics service providers to provide the required services

Although the Philippines has made significant strides in improving the efficiency of its supply chains, fragmentation, lack of end-to-end supply chain visibility, availability of numerous fee-for-service logistics providers, and limited availability of data make outsourcing segment(s) of the supply chain to the private sector in a best practice manner worthy of consideration.

To address concerns around private-sector organizations making a profit from public funds and assess the relative level of the outsourced costs, an in-depth understanding of the in-house costs is essential. Given that the current costs are not closely monitored, experience suggests that cost levels can be reduced by a more collaborative relationship with a logistics service provider. Thus, it is not unreasonable to assume that public-sector costs are higher than those incurred by the private sector. The content of a potential service provider's overall offering might include input to improve the IT systems that manage the daily operation and provide frequent performance monitoring data and communication between the two organizations to draft service-level agreements (SLAs).

The benefits of best practice 3PL and 4PL provider partnerships in the public and private sectors are readily available in the public domain in most developed economies. There is a significantly higher likelihood of meeting cost and schedule objectives with a 3PL or 4PL provider best practice relationship.

Advocacy and learning initiatives should be launched to ensure understanding of the intent, purpose, and organization of best practice 3PL and 4PL provider relationships. It is critical that all stakeholders, especially in the public sector, understand that the objective of 3PL and 4PL provider implementation is to increase government ownership and stewardship and enhance transparency and performance in the supply chain. Anything that reduces operating costs and enables additional expenditure in the areas of pharmaceuticals and medical equipment should be considered seriously. The decision framework, which incorporates the three assessment tools, provides a structure for doing so.

In conclusion, some outsourcing of a traditional fee-for-service nature has been undertaken by the Supply Chain Management Services of the DOH to deal with a particular element of the overall supply chain. It has involved several service providers offering short-term warehouse and/or transport services, which has required the Supply Chain Management Services team to manage many contracts. During the results dissemination workshop and focused group discussion forums, participants indicated that the key reason for not achieving the anticipated benefits of best practice 3PL provider relationships is the lack of experience in managing such relationships. The skills required include having a detailed understanding of the current levels of cost and the required levels of service, managing logistics service providers via regular review meetings and key performance indicators (KPIs), developing two-way SLAs, and presenting future strategic objectives to the logistics service provider's contract management team. Further issues regarding the use of 3PL and 4PL providers include:

- A lack of strong ownership of the overall supply chain by DOH staff, resulting in a tendency to abdicate responsibility for service delivery to the outsourcing partner despite the fact that overall responsibility remains within the public-sector supply chain team
- The view that the private sector is an expensive strategy and that the companies will be making a profit at the expense of the taxpayer
- The feeling that such relationships are not sustainable given the current level of donor support

Despite these fears and misconceptions, the benefits of best practice 3PL and 4PL provider relationships are well documented and include:

- Experienced staff within the logistics service provider's organization who are available to their clients, both on a day-to-day basis operationally and to support strategic planning and performance monitoring activities
- A more agile supply chain that is able to respond to increases in demand for supply chain resources as a result of working with a successful 3PL or 4PL provider with several ongoing contracts
- Integrated IT systems that have been developed to meet their demanding clients' requirements cost effectively
- Reduced levels of equipment downtime through routine equipment maintenance and renewal
- Higher levels of delivery fleet utilization as collaboration among different contracts with varied seasonal peaks is facilitated by the 3PL or 4PL provider
- An in-depth knowledge of the local logistics service provider market as a result of having a good understanding of their own cost base and operating profitably over the years
- Regular contingency planning to mitigate risks to the delivery of the agreed level of service. The service provider will be driven by the profit motive, and the contingency plans can be shared with its client for mutual benefit.

There is general consensus among many of the DOH staff interviewed that implementing a 3PL or 4PL provider relationship has the potential to overcome the shortcomings of public-sector health care supply chains. In broader terms, an enhanced health care supply chain will contribute to improving the overall health of the population, reduce the strain on the national health care system, and potentially enhance the economic growth of the country. However, implementing such relationships requires considerable education, mentoring, and guidance of the DOH SCM team to ensure that the benefits are delivered.

INTRODUCTION

The Philippines has 17 regions, 81 provinces, 145 cities, 1,489 municipalities, and 42,044 barangays with an estimated population of 110 million in 2021. The health care system is a mix of public- and private-sector providers that serve 70% and 30% of the population, respectively. As the lead steward of the health care system, the DOH manages the provision of promotive, preventive, curative, and rehabilitative aspects of health care. The Centers for Health and Development (CHDs) in the regions work closely with the local government units (LGUs) to implement the local health systems.

The supply chain supporting these health facilities is managed by the following individual units of the DOH:

- The DPCB selects family planning (FP) products and forecasts the amount to be procured.
- The Procurement and Supply Chain Management Team provides overall organizational, monitoring, and administrative support to the DOH procurement and supply chain services.
- Supply Chain Management Services, under the supervision of the Procurement and Supply Chain Management Team and in collaboration with POPCOM, manages the warehousing and distribution of centrally procured FP products to the CHDs, hospitals, and local health units via a combination of outsourced and owned assets in Manila, Legaspi City, Pavia, Zamboanga City, Davao City, and Cotabato City.
- The LGUs are mandated to integrate and implement their own local health system, including their own supply chain. Based on data from rural health units, the LGUs purchase the products, services, and infrastructure that are considered crucial to the efficient discharge of their functions and those required for their day-to-day operations in pursuit of their primary health care mandate.
- Based on the universal health coverage law Local Health System Integration and the Devolution Transition Plan 2022, LGUs are mandated to take over the financial and procurement responsibilities of individual-based commodities, including FP (such as oral contraceptives), by 2024.

In 2021 and 2022, MTaPS undertook a study into the political economy analysis (PEA), operational capability assessment, and cost-benefit analysis of engaging private-sector 4PL and 3PL service providers in supporting the public health supply chain.

Despite a considerable number of supply chain strengthening initiatives in the country, there are still supply chain gaps reported through different assessments, including:

- Fragmented management of the end-to-end FP commodity supply chain with several elements of DOH units, POPCOM, CHDs, and LGUs involved in procurement, warehousing, and distribution activities. The DOH manages procurement, warehousing, and distribution operations at the central level. At the regional level, POPCOM and the CHDs manage their own warehousing and distribution of FP commodities to LGUs, indicating the potential for duplication of distribution activities. The LGUs manage last-mile deliveries to service delivery points (SDPs).
- Both in-house and outsourced resources are deployed with different entities, including the Supply Chain Management Services and POPCOM, managing the relationships with those resources.
- Limited procurement and supply chain experience within the DOH and POPCOM is a particular concern within the organizations and impacts supply chain effectiveness. It was indicated that staff

were reluctant to accept roles with high levels of responsibility, such as membership in the Bids and Awards Committee, because of their limited SCM experience.
- Although most of the procurement of FP commodities emanates from the central DOH office, the regional, provincial, and local government units also procure, but they differ in the regularity and frequency of procurement.
- With the support of partners, the DOH and POPCOM came up with a co-management agreement in the warehousing and distribution of FP commodities from the national level to the LGUs where SDPs are located.

Many of these shortcomings can be overcome by outsourcing supply chain activities to private-sector logistics service providers. As the economies of many countries have advanced in recent years and manufacturing organizations have adopted best practices from developed countries, logistics service providers have emerged and provide a range of services, including procurement, international logistics, customs clearance, and in-country distribution offerings such as express courier services.

There are many different types of logistics service providers, and this report focuses on two:

- **3PL:** In LMICs, the public sector typically uses the term 3PL provider regarding an organization that offers service on a single element of the supply chain (e.g., warehousing, transport) and often follows a fee-for-service model. In high-income countries, the title is usually reserved for organizations offering a complete in-country operation embracing both warehousing and transport. Having a single organization managing both aspects of operation has operational coordination benefits. Typically, a 3PL provider would have an integrated IT system that includes order processing, warehouse management, and transport planning and enables data analysis and the production of performance measures automatically and in a timely manner. In some instances, a single 3PL provider will contract and manage further localized suppliers of warehouse and transport services on behalf of its client to provide a seamless operational network. This reflects the best practice method of operation with a small number of service providers for the client to manage.
- **4PL:** A 4PL provider relationship is the development of a 3PL provider relationship. In this situation, the organization will manage various 3PL providers without necessarily deploying any of its own operational assets. A 4PL provider is a professional logistics company that integrates multiple logistics services to provide clients with an end-to-end strategic view of the supply chain, supported by an IT system that enables transparency and analytics capabilities for proactive monitoring and continuous improvement. The 4PL provider owns few, if any, assets itself; rather, the discrete supply chain functions are carried out by 3PL providers.[1]

In more practical terms, a 3PL provider will be involved in the following supply chain activities:
- Manage ongoing communication to ensure there is an understanding of the client's requirements, such as analyzing and communicating product volumes, new product introductions, costing budgets, health care campaigns that will affect demand, and schedules for both inbound and outbound product movement.
- Receive instructions to ship products to the client's customers. In best practice situations, this is done through electronical data exchanges between the IT systems of the two organizations. In some

[1] MTaPS. (2021). Desk Review on the Global 4PL Landscape and its Application in Global Health Supply Chains.

instances, the 3PL providers provide the order capture process directly with the dispatching schedule already developed collaboratively in advance of the receipt of orders to meet the required level of service.

- Receive inbound sea-freight containers and air-freight shipments based on the unloading schedule agreed to with the procurement team and customs clearance offices.
- Store products from suppliers and returned items from customers. 3PL providers will operate automated warehouse management systems that record detailed product descriptions and inventory transactions and facilitate warehouse business processes such as pallet and batch locations; expiry dates tracking; perpetual inventory counting; picking, packing, and dispatching orders after developing a distribution plan with the client and receiving instructions to proceed; and producing delivery documentation or deploying paperless proof of delivery (POD) processes.
- Implement and maintain appropriate IT systems and electronic data exchange between the two organizations. While the 3PL provider will deploy and update specific warehouse management and route planning systems internally, there is a need to interface those systems with the systems of the client.
- Measure and report performance-level achievement. Utilizing the data from within the operational systems and other data collection techniques, the 3PL provider will report progress at the intervals agreed within the SLA. Best practice supply chain operations can achieve almost perfect performance in terms of delivery timeliness, stock availability, high stock turns, order completeness, cost budget conformance, and error-free picking and dispatch. Modern paperless warehouse picking systems have helped significantly in this respect.
- Recommend improvements. After historical data are gathered, 3PL providers could recommend potential operational improvements that could be introduced to reduce costs and/or increase the level of service.

A 4PL provider will not manage any supply chain network assets but will contract with and manage several 3PL providers on the client's behalf. The 4PL provider will need to implement and maintain appropriate IT interfaces between the client and the various 3PL providers for both operational and performance monitoring purposes.

- The 4PL provider will reduce the client's administrative burden of managing several 3PL providers and enable more in-depth communication related to strategic and efficient operations and cost reductions. Typically, a 4PL provider will have data analytical systems and processes in place that can be used collaboratively with the client for strategic, operational, and budget planning.
- 4PL providers take things to the next level and provide clients with operational analysis and managerial insights. Although rare, there are situations in which the 4PL provider undertakes procurement activities and in-country physical distribution on behalf of its client. As SCM is in the process of being devolved to LGUs, 4PL providers could be the best option for integrating the local supply chain systems in the long term.
- If the procurement law in the Philippines does not permit non-asset-owning organizations to provide logistics services to the public sector, the concept of the lead logistics service provider (LLP) could be another option to involve one of the larger 3PL providers to interface with the client and manage all other 3PL providers on a subcontract basis. While the benefits may not be as great as with a 4PL provider, the LLP scenario provides the benefits of 3PL provider relationships with a reduced administrative burden. Further analysis of the legal provisions on engaging 4PL providers is required to identify various options.

In terms of performance measurement and appropriate KPIs, it is important to monitor only those aspects of the operation that the logistics service provider can control. For example, the classic all-embracing supply chain KPI is the delivery on-time and in-full percentage and should be included as a performance measurement in the contractual terms. Unless the logistics service provider is responsible for forecasting and inventory control, it will not control the in-full element of the measure. It will be in control of the on-time element and should be measured with regard to that element accordingly. The in-full data should be provided by the 3PL and 4PL providers' information systems for use with other members of the SCM team. The logistics service provider can impact the in-full element of the KPI indirectly, to some extent, and appropriate measures include:

- Stock record accuracy
- Level of stock losses
- Order picking accuracy
- First expiry/first out conformance

Other suitable measures include:

- Planned cost budget variance
- Conformance to inbound unloading schedule
- Inbound goods processing time
- Cold chain breaks
- POD return timeliness

There are many other measures and projections, such as warehouse space utilization, that the logistics service provider can produce to support the collaborative planning and the search for operational improvements and cost reduction with its client.

Typically, a best practice 3PL or 4PL provider relationship has the following characteristics:

- **Longer contract lengths than traditional fee-for-service arrangements.** To develop a collaborative relationship and generate sustainable benefits in terms of cost reductions and service level improvements, longer contracts will be necessary. This is particularly the case if investment in new warehouse facilities is required by the logistics service provider.
- **Defined contacts between the organizational units of the client and the service provider.** To achieve effective communication between the two organizations, nominated points of contact between the two organizations will be designated. Senior points of contact would be higher-level executives or managers in each organization. Day-to-day operational matters would be handled by nominated contacts within the client's logistics team and the logistics service provider's operations team. An escalation protocol will be defined for handling issues that cannot be resolved by the nominated contacts.
- **Integration of the IT of both organizations**. While the logistics service provider will have implemented various systems to support its business, such as a warehouse management system and vehicle load planning systems, there will be a need to integrate those systems with its client's order processing and procurement systems. The available data will be used for managing operations, measuring performance, and identifying potential cost and service benefits.

- **Scheduled reporting at various levels within the organizations**. Daily reporting of activities is a feature of best practice relationships. While the daily report will be at a summary level, other periodic reports will be of a more detailed nature and reflect the SLA KPIs.
- **SOPs detailing the methods of working for both the client and the logistics service provider**. The collaborative relationship is two-way in nature. For the logistics service provider to perform effectively, the client must provide information and make decisions in a timely manner. The SOPs will detail the obligations that both parties have to one another. For example, the client will advise the logistics service provider of details of new products four weeks prior to their arrival at the warehouse, and the logistics service provider will provide POD within three days of making the delivery.

Outsourcing to logistics service providers can be cumbersome for governments to manage because of the unilateral focus of many 3PL providers. Implementation of 4PL providers could be an effective solution to streamline traditional piecemeal outsourcing while increasing value for money. A desk review of the global landscape in commercial and health supply chains demonstrated the effectiveness of 4PL partnerships.[2] Country-specific analysis was needed to evaluate the best way to leverage the capabilities of private 4PL providers to improve the availability of products in the public sector. Tools were developed and deployed in the Philippines to obtain a better understanding of current public supply chain costs and service levels, the operational capability of the public and private sectors, and the perceptions and factors that influence decision making in both sectors. The tools developed and implemented included:

- **Cost-benefit analysis** to measure current supply chain spending and benefits and compare them to a future 4PL provider-operated outsourcing model
- **Operational capability assessment** to identify strengths and gaps in the SCM of the public sector and assess the ability of the private sector to provide required services
- **RPEA** to understand the major political, economic, social, and cultural incentives, motivations, and constraints that impact decision making in the public and private sectors

These analyses were components of a larger decision framework that informs the decision to adopt a best practice 3PL or 4PL provider strategy using a systematic approach. The decision framework was utilized for the purposes of this activity and is a valuable resource for any government or supply chain that aims to evaluate whether 3PL or 4PL provider outsourcing could be beneficial.

An understanding of the Philippines' ability to solicit, manage, and supervise service delivery contracts was acquired through focus group discussions with public-sector supply chain staff to inform the need for future capacity building if 4PL provider outsourcing is considered. Finally, preliminary activity results were shared and discussed with each country through a dissemination workshop, and an advocacy brief was drafted and submitted to policy makers and key stakeholders in the Philippines.

[2] Ibid.

DATA COLLECTION METHODOLOGY

KEY SELECTION CRITERIA FOR PRIVATE-SECTOR ORGANIZATIONS

Organizations were identified through previous government contracts in the last five years, institutional knowledge, website reviews, and conversations with stakeholders. Team members used their contacts from previous projects and knowledge of the 3PL and 4PL provider markets in the country. Any private-sector organization that had the potential to provide outsourcing services to the public sector was included. Regrettably, not all organizations contacted agreed to participate, reducing the size of the sample interviewed.

KEY SELECTION CRITERIA FOR FOCUS REGIONS

To determine geographic areas for study, key selection criteria were developed. The goal was to select areas that had:

- Contracting capacity and/or already outsourcing some segments of the supply chain
- Political interest/openness at the local level in using 4PL providers at the subnational level, frustration with managing outsourced contracts to fee-for-service transporters or 3PL providers, or not getting desired results despite outsourcing
- Available data and data collection procedures to monitor 4PL provider performance
- A relatively well-developed private sector
- At least partial government funding and management of warehousing and distribution (i.e., not completely dependent on donors)

It was also critical to understand the scope of USAID Mission and DOH support. Supporting documentation was requested to provide additional insight into the geographic area's supply chain (table 1).

Table 1. Interview topics and corresponding documents requested for selection criteria

Overarching topics	Specific documents
Supply chain strategic plan	Supply chain planning meeting minutes/notes
	Copy of contract (if any) with 4PL provider
Overall organization structure (organogram)	Organization charts for individual supply chain elements
	CVs of the senior management team
Supply chain system diagram	Warehouse management system user guides
	Supply chain system training materials
	Sample bin cards
Supply chain operating budget	Budget/actual costs for last 12 months
	Sources of funds (e.g., government, donor, implementing partner)
	Warehouse space contract
	Invoices for the rented space
	Warehouse space utilization reports

Overarching topics	Specific documents
	Copies of contracts with warehousing companies (fee-for-service transporters and 3PL providers)
Vehicle planning documents	Vehicle routing and scheduling screenshots
	Rate tariff and invoices for a range of hiring arrangements
	Copies of contracts with transport companies (fee-for-service transporters and 3PL providers)
Copies of KPI reports for the last three months	Functional/departmental KPIs
	Customer complaint reports
	Customer survey reports

A letter was sent to seven selected USAID-supported regions and national-level stakeholders. Partners from these areas were requested to complete a survey guide that sought information relevant to the key selection criteria. Table 2 illustrates factors considered to determine the applicability and feasibility of a 4PL provider study. Only four regions responded, and three of those (Bicol, Cebu, and NCR) were selected to conduct the study.

Table 2. Factors to determine activity fit, applicability, and suitability

Factors considered to determine feasibility of 4PL study	Yes/No
Interest in 4PL providers	
Mature 3PL/4PL provider private sector	
Activity support	
Area suitability	

ASSESSMENT TOOLS

Assessment tools were developed to assist in obtaining the information necessary to evaluate the public-sector supply chain, including KPIs, cost, and service level data as well as perceptions and beliefs about outsourcing practices. Tools were also developed for the private sector to assess the ability to provide needed services for the public sector and its willingness to collaborate with the public sector.

Once the tools were approved, data collectors were recruited and trained. Interviews were scheduled with both the public and private sectors using Google forms, and data collectors were assigned to each stakeholder/organization. The first interview was attended by the team of data collectors, the in-country consultant, and the project coordinator, after which feedback was given to the team to ensure uniformity of responses.

All interviews were conducted virtually (via Zoom or Google Meet) or in person and were recorded after receiving verbal or written consent from the interviewees. This activity took place during the COVID-19 pandemic, which created substantial boundaries to scheduling and interviewing staff. Lockdowns were frequent, which made regular communication away from the office and reliable internet difficult.

Several private-sector providers did not respond to the communication despite follow-up efforts. There were a few scheduled interviews that did not take place as planned because of COVID-19-related concerns. There were also some political sensitivities that caused respondents to avoid procurement and outsourcing discussions.

Rapid political economy analysis

In the scope of this PEA, study participants were local, regional, and central stakeholders. The stakeholder inclusion criteria were individuals working in the public sector (all levels of public government institutions) or in the private sector (all sizes companies and firms working in-country and internationally) with expertise and experience in at least one component of supply chain. These participants were identified and recruited by key informants, by reading through policies and institutional documents, or by recommendations from already enrolled participants. The stakeholders received email or telephone invitations to participate in the study.

The study conducted semi-structured in-depth interviews with each stakeholder in Filipino/Tagalog. Two interview guides were created, one for public-sector and one for private-sector interviews (Appendixes II and III). Both interview guides consisted of open-ended questions followed by probes and prompts. The interviews were conducted in person and via a digital platform. They were recorded on handheld audio recorders or via the in-app Zoom platform function. During the recruitment process, all participants provided oral and written consent for being interviewed and recorded and for the anonymous publication of their responses in the final report. The public-sector interviews were longer than the private-sector interviews, lasting 30–110 minutes compared to 15–60 minutes.

Operational capability assessment

Operational capability was assessed in both the public and private sectors using two questionnaires. The aim of the public-sector assessment was to identify areas for improvement and determine where the private sector could add benefit. Stakeholders from the national and subnational levels were surveyed. These stakeholders were identified through the in-country consultant, institutional knowledge or documents, key informants at USAID, relevant policies, or conversations with other interviewees. The stakeholders were invited to participate in the study via email and/or telephone. Operational capability of the private sector was used to determine whether the private sector had the necessary skills to support identified gaps in the public sector.

Interviewers were performed by trained local data collectors. Each attribute was described under 5 levels of performance that were allocated a score of 0 to 4. A total score for each geographic location could be calculated and the potential for improvement identified. Select questions required a yes or no response. A score between 0 and 4 was allocated by the project team based on the respondents' yes or no answer, the comments interviewees made at the time of the interview, and answers to other related questions. The length of interviews varied, with public-sector interviews tending to be much longer than those with the private sector.

Cost-benefit analysis

Data used in the evaluation were collected, and analysis was conducted for the national supply chain as a whole, using three main approaches: document review, interviews with selected stakeholders working in the supply chain for FP commodities at the central and regional levels, and formal requests for specific data from the DOH and implementing partners. Relevant documents were reviewed to gain an understanding of the current public health supply chain and determine the inputs and costs of running the system. Documents reviewed included publicly available documents (e.g., planning documents, reports, SOPs) and documents specifically requested for this evaluation (e.g., budgets and expenditures,

organograms, distribution plans, service contracts, KPIs). Full details of the documents reviewed are given in table 3. We requested and reviewed available documents ahead of the interviews. Additional supporting documents and information were requested based on responses provided during the interviews.

Table 3. List of documents reviewed

Publicly available documents
1. Rapid diagnostic report: Health commodity procurement, supply chain management, and pharmacovigilance in the Philippines 2. Philippines Department of Health National Procurement and Supply Chain Management Strategic Plan 3. Strengthening the Department of Health's Warehouse Management System in the Philippines 4. Philippines National Demographic and Health Survey 2017 5. Strengthening the Supply Chain Governance Framework for Pharmaceuticals and Health Products in the Philippines
Documents specifically requested from DOH and technical assistance providers
1. Organogram of the logistics/supply chain function 2. Latest distribution plans 3. Health facilities served in the geographic area 4. Budget and actual expenditures for the last 12 months 5. Space utilization reports 6. Warehousing contracts/invoices 7. Transport contracts/rate tariffs and invoices 8. Vehicle routing schedules 9. Volumetric information 10. Department KPIs

In addition to reviewing these documents, we interviewed key informants identified in the supply chain from the central, regional, and local government areas to obtain additional information, follow up on documents requested, or validate information already gathered. Interviews with selected stakeholders were performed using a structured interview guide that was based on the Rapid Supply Chain Modeling Tool. All interviews were performed online. Additional data were collected directly from MTaPS in-country support teams. Clarifications on data received and follow ups were sought via email or phone. The full details on key informants identified for the interviews are shown in table 4.

Table 4. Stakeholders interviewed

Supply chain level	**Stakeholders**
Central	Director of SCM services SCM head of FP program CCW/CMS manager M&E officer
Regional	POPCOM representative Supply officers
Provincial level LGU	PLGU representatives
Municipality level LGU	None
CCW=central contraceptive warehouse, CMS=central medical stores, LGU= Local Government Unit, M&E=monitoring and evaluation, POPCOM=Commission on Population and Development	

POLITICAL ECONOMY ANALYSIS

The aim of the PEA is to determine the preferences of key stakeholders across the country on the engagement of 4PL providers in supporting the public health supply chain. More specifically, the PEA aimed to:

- Explore stakeholder preferences regarding working with the public-private sector
- Explore public stakeholder willingness to partner with 4PL providers
- Identify the factors influencing public-sector stakeholders' decision making in regard to 4PL providers

METHODS

Data analysis

The data for this study were generated in the form of audio recordings that were transcribed and anonymized. The transcriptions were uploaded into the analysis software NVivo 12 (QSR International). Framework analysis (FWA), a form of thematic analysis, was utilized. FWA is useful in applied policy research as it provides a structure for managing information and a systematic model for mapping data.[3] FWA allows for the comparison of data and theme generation.[4] It facilitates the organization of large data sets into tables and matrices, the detection of patterns, and the summarization of data.

A data-centered inductive analysis process, FWA is conducted through a seven-stage process:[4]

- Stage 1: Transcription of audio-recorded interviews using the verbatim protocol method
- Stage 2: Familiarization process through listening to audio recordings and reading a subsample of transcripts
- Stage 3: Open free-form coding of a subsample of transcripts to generate the initial coding and analysis frames
- Stage 4: Developing the analytical framework, grouping codes into categories, defining the categories, and building the framework
- Stage 5: Importing all transcripts into NVivo 12 software and applying the framework when coding
- Stage 6: Reducing and summarizing by category with a focus on retaining the essence of the data and selecting illustrative quotes
- Stage 7: Interpreting the data, codes, categories, and themes

[3] Srivastava A, Thomson SB. 2009. Framework analysis: a qualitative methodology for applied policy research.
[4] Gale NK, Heath G, Cameron E, Rashid S, Redwood S. 2013. Using the framework method for the analysis of qualitative data in multi-disciplinary health research. *BMC Medical Research Methodology*, 13, 117.

Data	**Stakeholders' raw data were presented through direct quotes from the interviews** Sections 3.1–3.4				
Codes	■ Introduction of stakeholders ■ Institution and supply chain ■ Position in institution ■ Role in the supply chain	■ Introduction of stakeholders ■ Their institution and the supply chain ■ Their position in their institution ■ Their role in the supply chain	■ Cautious adding 4PL ■ Openness adding 4PL ■ Not supported by internal policies/law ■ Consideration of management impact ■ Consideration of staff impact ■ Consideration of budget impact	■ Worsen oversight ■ Increase costs ■ Reduce ownership ■ Creates job lose	■ Increases efficiency ■ Saves time ■ Reduces costs ■ Decreases workload
Categories	Stakeholder characteristics and current role in the supply chain	Preferences of public/private partnership to address problems and gaps	Public-sector willingness to collaborate with 4PL	Public-sector factors influencing decision making on 4PL integration	Public-sector factors influencing decision making on 4PL integration
Themes	Perception of current supply chain	Recognition of supply chain problems and gaps	Proposition of 4PL as a solution	Unfavorable outlook on 4PL integration	Favorable outlook on 4PL integration
Interpretation	Stakeholders' pathway to decision making in regard to 4PL integration				

The figure illustrates extracts of the codes and categories that emerged from the data. These are the key components of the analysis process transcription to interpretation.

Figure 1. The qualitative data process from raw data to final analysis

RESULTS

The reporting of results is structured along the lines of the three objectives of the PEA. The study presents the unedited participant results. Subjects and themes are derived from stakeholder responses. The participant responses reflect their thoughts, perceptions, and actions and not USAID values, and they are not endorsed by USAID.

Stakeholder perceptions, understanding, and willingness are summarized through narrative and illustrative direct quotes selected for poignancy.[5] Each quote is identified with the participant's country (Philippines [PL]), the participant's sector of employment (public sector [PU] or private sector [PR]), and the participant's interview code number.

[5] Sandelowski M. 1994. Focus on qualitative methods. The use of quotes in qualitative research. *Research in Nursing & Health*, 17, 479-482.

Stakeholder characteristics

The qualitative, in-depth interviews of participants began with an introduction of the subject to be discussed. This was important to situate the context for the conversation and place the participant within the scope of the subject. After the introduction to the interview subject, participants were given a chance to pose questions and ask for clarifications. Stakeholders were then presented with introductory questions from the interview guide. Since these were semi-structured interviews, there was flexibility to pose the exact questions in the interview guide or a variation. The first questions were "*Can you please introduce yourself? What is your official title? Can you tell me about your work/role/the supply chain*?". In response, stakeholders introduced themselves, their institutions, the parts of the supply chain they work in, and the purpose of the supply chain from their perspective. In so doing, participants situated themselves in the supply chain, reflected on its functionality and gaps, and highlighted their personal experiences.

In the Philippines, 28 participants (13 men, 15 women) were interviewed. They worked in all parts of the supply chain from planning to monitoring, evaluation, supply, and procurement.

Table 5. Characteristics of the interviews conducted

Participants interviewed	28
Total number of organizations/offices interviewed	18
Interviews with 1 participant	13
Interviews with 2 or more participants	5
Public-sector organizations/offices interviewed	9
Private-sector organizations interviewed	9

Table 6. Levels of government at which public-sector participants are employed

Public-sector participants at the national level	5
Public-sector participants at the regional level	8
Public-sector participants at the municipal LGU level	2
Public-sector participants at the province LGU level	2
Total public-sector participants	17

Preferences of public/private-sector partnership

The first objective of the PEA was to explore stakeholder preferences regarding working with the public/private sector. To determine this, participants were asked to discuss their perceptions and preferences in collaborating with the opposite sector.

Public sector working with the private sector (preferences/reasons)

The public-sector stakeholders from government institutions and departments did not have a unanimous preference regarding collaboration with the private sector. A few participants were not in favor of outsourcing segments of the supply chain through private partnerships, but many were open to the idea. Those who preferred not to engage with the private sector expressed that their department had the **necessary capacity** to conduct the work required of them, meaning that outsourcing was unnecessary. One stakeholder explained that partnering with the private sector was not a matter of preference but a **necessity**. The remaining participants from the Philippines had no strong stance for or against public-private partnerships. According to a few of the stakeholders open to collaboration, there

are components of the supply chain that government institutions/departments cannot conduct entirely on their own. Participants explained that their institutions' inability to carry out every component of the supply chain was primarily due to the **lacking infrastructure and manpower**.

> *"Well, I think [public-private partnership] are very promising because a lot is lacking in the infrastructure of the DOH, including the manpower to complete the supply chain. There is no IT system, end-to-end, and difficult to monitor the utilization from the ground. There are no master-keeping units and also no visibility. And if we can prevent that, I think it would be good if we can gather the information for quantification and product selection which are the mandates of the DPCB." (PL_PU_01)*

One participant, who has had positive and successful experiences partnering with private firms, expressed a desire to increase public-private partnership by outsourcing more components of the supply chain.

> *"For us, right now we outsource distribution, but I don't think it should just be distribution, I also say we should also outsource forecasting ..." (PL_PU_04)*

Private sector working with the public sector (preferences/reasons)

The interviewed participants employed in the private sector had a strong desire to collaborate with the public sector. These stakeholders envisioned public-private collaborations as mutually beneficial.

> *"The public sector can benefit from the capacity of the private sector to improve the distribution efficiency, right? And avoid stock expiring in DOH warehouses. On the other hand, on the part of the private sector, they can benefit too how? With the nationwide range of health facilities, it cannot be done immediately by the private. So that's the benefit of the collaboration. It's expanded, its reach as a private enterprise. That's the mutual benefit of the private-public engagement, it's a win-win." (PL_PR_07)*

According to private-sector participants, the public sector can benefit through capacity building and strengthen their organizations' operational efficiency. In partnering with the private sector, the public sector gains access to state-of-the-art facilities and access to more equipment and machinery. In this partnership, the private sector gains insight into the process of the public sector and networks with new organizations. The private sector also benefits by diversifying its portfolio and working on government-funded large-scale contracts (figure 2).

In the Philippines, where the private-sector participants have vast experience partnering with the public sector, there was consensus in favor of public-private partnerships. According to participants, the focus is now on improving these partnerships. One proposal is through the involvement of **mediators or intermediaries**, who will work to solidify commitments between the two sectors and ensure the smooth administration of contracts. This would, in turn, encourage more collaboration.

> *"As we know the private sector always partnered with the public sector in public supply chain management. There are a lot of engagements with the supplies, with 3PLs, contractors, right? So we believe the public sector is open-minded, willing to partner with the private sector. It just needs somebody like your group who can guide them or mandate or provide technical guidance or advisory so they can do it." (PL_PR_07)*

Some private-sector stakeholders in the Philippines explained that part of the importance of public-private partnerships for them was pride in contributing to their country. Besides the financial bottom line of conducting contracted business with the government, they took their role in the pharmaceutical supply chain as a special citizen responsibility and a way of giving back to their own country and people. As a result, some private-sector actors report providing the government with better rates and prices. Furthermore, this sense of contributing to their country is what allows them to look past many of the difficulties they face when working with public-sector institutions and departments.

> *"…if you've been able to see our mission/vision, of course, revenue is the bottom line of everything, so it should be increased. But for us, especially with the government [contracts], part of our objective of [the] position of the public accounts like DOH is – the composition of our pricing has a sense of patriotism involved… Because we own the warehouse, we have the trained personnel, we're more flexible when it comes to looking at every aspect of the operation to slash the unnecessary costs, to be able to give more competitive bidding prices. Anyway, it's for the government … we are serving the people of the Philippines, we are not just doing it for ourselves, we have in concrete pride and [it's a] social responsibility, we do a part of our share to the society. It's a combination [of both], it's not just the monetary aspect, but there are what we call unseen factor..." (PL_PR_01)*

Although there is much to gain in the cooperation, participants also highlighted a plethora of difficulties in public-private partnerships in terms of staffing, bureaucracy, contracts, and payments (figure 2).

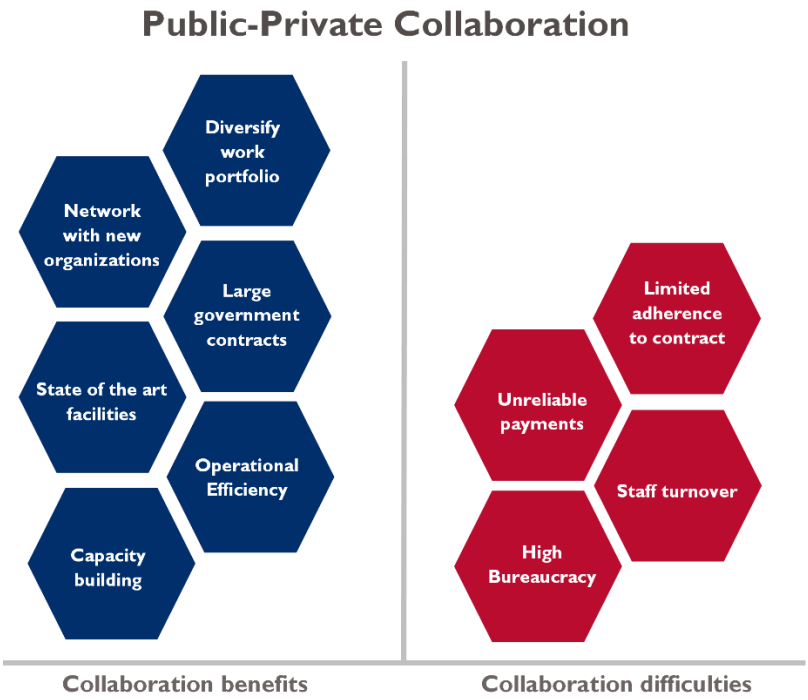


Figure 2. The benefits (blue) and difficulties (red) of public-private partnerships.

According to the private-sector participants, a longer engagement process with the public sector created a hurdle for collaboration. These bureaucratic and administrative barriers affected the initiation of partnerships throughout the duration of the contract to the final deliverables. The bureaucracy

culminated in a heavy learning curve during all new partnerships and was associated with slow, complicated, and conservative government processes.

> *"It's procurement [the issue]… government agencies have to abide [by all the rules] because they're afraid of being audited. Like for DTI, they don't want to procure directly, and if they do, they have to pass through the eye of a needle. So, it's really difficult because they're afraid of being audited, they're afraid of the Ombudsman. Even if it is an emergency, it won't work, it's still slow. I think compared to others, our procurement laws are very strict and it's not the same as other countries … I understand the government sector because we have the COA, the Ombudsman, who target corruption. So even upstanding government officials, still need to cross the piece, put the dots, right? It has to be clean, so that's what causes the long process." (PL_PR_02)*

Stakeholders highlighted the unreliability of payments in government contracts. According to the stakeholders, although timelines and agreements are set for the payment of rendered services, the payments do not arrive on time. Payment from the government is inconsistent and often delayed. The private-sector participants stated that they cannot depend on government contracts to run their business due to these delays, and they have parallel private-sector contracts that sustain them more reliably.

> *"In terms of payment, at some points, it takes a while… we had the collection so it's okay, it's continuous but sometimes it can be delayed. Of course, not everything has the reason behind [it], but anyway [we rest] assured that the project that we have or are engaged with is funded. As long as it's funded, no problem with that." (PL_PR_01)*

Finally, stakeholders shared that throughout their experiences with government collaboration, they faced constant staff turnover that led to limited adherence to contract terms. The civil servants with whom the private sector began collaborative work were often not the same staff at the end of the project. In the midst of a partnership, the public sector's new staff at times were unwilling to adhere to the contract terms negotiated by former staff. The staff turnover led to work discontinuity, flow interruptions, and constant renegotiations. For private-sector participants, this means they are unable to build long-lasting, stable, and trusting relationships with their public-sector counterparts.

Public-sector willingness to collaborate with 4PL providers

Public-sector participants expressed an array of responses when asked how they viewed the integration of a 4PL provider into their national pharmaceutical supply chain system. A few participants stated that they did not believe it was the best direction to take for their system.

> *"it [the supply chain] should be in house. I really don't like 3rd party, 4th party, it's really in house, they have the capability … the 4th party is like a control tower, who will oversee things. But if you will ask me, I prefer in house." (PL_PU_10)*

On the flipside, some stakeholders were in favor of the concept. They viewed 4PL providers as a solution to an array of difficulties and systemwide problems faced by national and local governments.

> *"Yes, I think they [4PL] are coming in to further improve the supply chain management. So once they come in to improve, it's better than what the 3PL was doing, it's okay by me." (PL_PU_08)*

"I'd go for the 4PL because [the advantages] outweigh the disadvantages, and I don't think it will cost much. So, I think of it as more advantageous, on the part of the government. The 4PL is also from the private sector... I think that's what we need. I guess not just in procurement, but for the DOH as a whole." (PL_PU_03)

Public-sector factors influencing decision making on 4PL provider integration

Stakeholders' discussion of the factors influencing their decision making regarding the integration of 4PL providers revolved around management, staff, budget, and utility/efficiency. These were the components most important to public-sector stakeholders because they affected how well the institution would be able to meet its requirements and goals. Based on the frequency of discussion throughout the interviews, stakeholders' perception of how 4PL providers would affect the staff of their public-sector departments was the primary influential factor. This was followed by how the integration of 4PL providers would affect the management, budget, and utility/efficiency of their department and supply chain (figure 3).

Figure 3. Four factors outlined by public-sector participants on 4PL provider collaborations

Note: Each factor is subdivided into reasons for (green) or against (red) the integration of 4PL providers into the supply chain system.

Public-sector factors against 4PL provider integration in the supply chain system

In examining these factors, participants who did not prefer to include a 4PL provider in their supply chain system described an interconnected web of seven reasons (figure 4) as to why this should not occur. The primary factors against the use of 4PL providers were based on the perception that such providers would destabilize the staff (reduce ownership, create disempowerment, create job loss); have a negative impact on management capacities of the department (worsen oversight, reduce accountability); increase strain on the institution/department budget; and not increase the utility/efficiency of the supply chain.

Figure 4. Seven reasons against working with 4PL providers in the pharmaceutical supply chain

At the management level, some stakeholders envisioned a loss of oversight of their activities, reduced ability to hold their staff accountable, and overall disempowerment in regard to their management role. They feared it would result in the crumbling of the current management structure, create confusion in the reporting hierarchy, and reduce the public sector's ownership and leadership on supply chain projects.

> *"Of course, it will decrease ownership because instead of us [the government] delivering them [products], it's[the 4PL's] responsibility that the delivery and holding occur. It will decrease our ownership because we transfer [ownership] to them as the responsibility transfers to them" (PL_PU_06)*

The impact of hiring a 4PL provider on job loss and job security was a concern to some stakeholders. Outsourcing to a 4PL provider would make some public-sector staff redundant, eliminating certain positions and creating overall job loss for public-sector staff.

> *"What would happen to their staff, especially because their office is newly created. What would be the roles of their people? Will they just process the vouchers and monitor because technically it's the 4PL*

which would do everything. Perhaps what should be done first is cost-benefit analysis in terms of the manpower we have right now and the number of people hired below versus hiring of the 4PL." (PL_PU_02)

Participants raised concerns over the financial implications of contracting out some of their work. They emphasized the restricted nature of their current budgets and viewed hiring a 4PL provider as a financial threat to their budgets. The notion of increasing spending in their department for 4PL provider services was inconceivable to some stakeholders.

"Based on your explanation of 4PL, I guess the disadvantage that I can see is the additional cost." (PL_PU_03)

A fraction of participants felt that the efficiency of the supply chain would not be increased with 4PL providers, and outsourcing was unnecessary. These participants pointed to internal policies that did not support the outsourcing of certain parts of their operations.

"Yeah, I don't think they'd outsource forecasting because they have human resources that are capacitated for forecasting. And then for procurement, I know even the RA 9154 Procurement act, I think it says you cannot outsource procurement. We have to follow RA 9154." (PL_PU_04)

The public sector in support of outsourcing to a 4PL provider in the supply chain system

In terms of management, staff, budget, and utility/efficiency, participants shared what could be positive outcomes resulting from outsourcing to 4PL providers. Participants perceived potential benefits at the management level in regard to improved oversight and accountability and decreased workload of current government staff. They also perceived possibilities to reduce costs and improve utility through increasing efficiency and saving time as a result of 4PL provider support (figure 5).

The pyramid structure illustrates how components described by participants built on each other.

Figure 5. Stakeholders perceive these favorable factors for engagement of 4PL provider

The stakeholders who perceived 4PL providers as a positive addition to the supply chain stated that hiring 4PL providers can lead to better management of tasks and closer oversight of activities. Hiring

providers that would actively oversee government employees' staff would also increase staff accountability.

> *"Well, I think [4PLs are] very promising because a lot is lacking in the infrastructure of the DOH, including the manpower to complete the supply chain. There is no ID system, end-to-end, and difficult to monitor the utilization from the ground. There are no master-keeping units and also no visibility. And if we can prevent that I think it would be good if we can gather the information for quantification and product selection which are the mandates of the DPCB." (PL_PU_01)*

Stakeholders emphasized that government employees have increasingly large responsibilities and are overworked. They hypothesize that employing 4PL providers could decrease the workload of public-sector staff, especially those with multiple roles.

> *"And the advantage [of a 4PL] is that it might lessen the lapses. Because right now, things are not closely monitored due to the DOH's lack of manpower. I'm not underestimating our expertise, but I guess because of the amount of work, there's a lot of multi-tasking going on." (PL_PU_03)*

Stakeholders were optimistic that outsourcing to 4PL providers could optimize productivity, which would reduce wastage, save time, reduce costs, and increase efficiency in the supply chain.

> *"…there really is a need for 4PL in forecasting... the forecasting that was done is not using the scientific method. Because if they really did forecast, there should be no wastage, because forecasting means no wastage… They can save money through outsourcing, like the forecasting and procurement part…" (PL_PU_10)*
>
> *"Aside from warehousing, maybe one [opportunity for outsourcing] would be on the distribution. Because for me as a pharmacist that is one of the problems that I see in the supply chain section. Not just with us, but also from the CO, there are delays in the delivery, so if deliveries are delayed, the medicines will be mostly near expiry when they arrive at the facility … maybe when you outsource…, the distribution is faster." (PL_PU_11)*

OVERVIEW OF RESULTS IN FOUR PATHWAY STEPS

Using FWA, the study progressed from raw data to the overarching interpretation of participants' results. This progression has been compressed (figure 6) to display how the steps of the FWA led to the generation of the overarching results of the study: stakeholders' pathway to decision making in regard to the integration of 4PL providers into pharmaceutical supply chains.

The FWA culminated in the construction of a pathway used by stakeholders when considering whether contracting 4PL providers would be beneficial. The pathway from this study showed that stakeholders used a similar four-step process during this interview:

1. Perceiving their current supply chain and their role in it
2. Recognizing the problems and gaps in their supply chain
3. Considering the proposition of 4PL providers as a solution
4. Considering the reasons for and against integrating 4PL providers in the supply chain

DISCUSSION

Summary of main findings

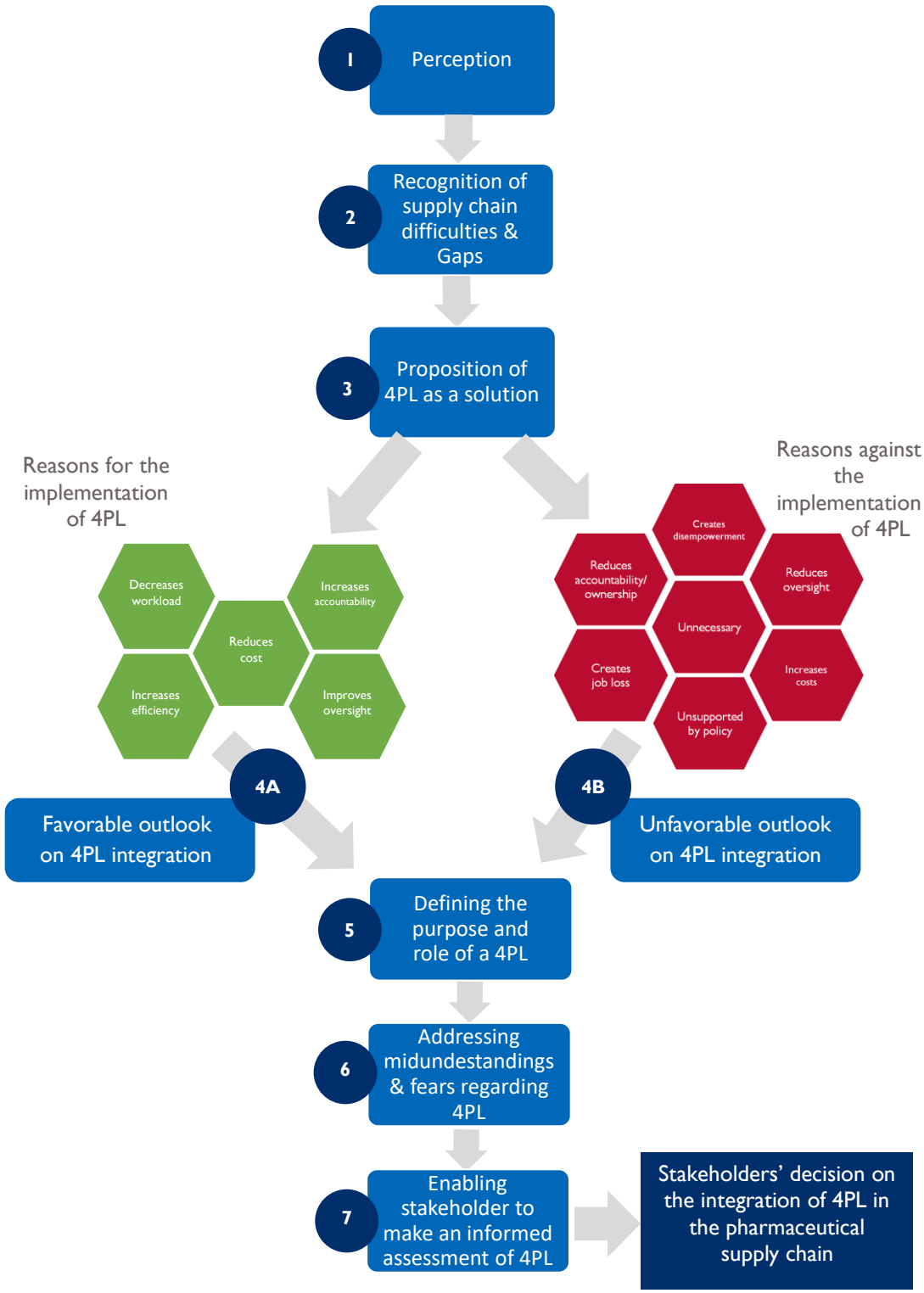
In regard to public-private partnerships, the public-sector participants had diverging views. The stakeholders who were in favor of partnership saw this as a possibility to address the public sector's lack of supply chain infrastructure and missing human resources. The participants who thought otherwise explained that their departments and institutions did not require additional help or input to conduct their activities. Private-sector stakeholders were favorable to public-private partnerships and expressed a willingness to partner with the public sector. They envisioned a mutually beneficial partnership, exchanging expertise (e.g., capacity building, operational efficiency) for opportunity and growth (e.g., government contracts, broadened portfolio, growing networks). Public-sector participants' willingness to partner with the private sector was dimmed by difficulties they have faced in past public-private collaborations. The government's limited adherence to contracts, unreliable payments, continuous staff turnover, and bureaucracy represent areas for improvement that would strengthen public-private partnerships according to private-sector participants.

Public-sector stakeholders considered how 4PL providers would impact their budgets, their institutions' management, their staff, and the efficiency of the supply chain when deciding for or against outsourcing. Those against 4PL integration in the supply chain thought 4PL providers would destabilize their staff, reducing ownership, creating disempowerment amongst employees, and leading to job loss in the public sector. At the management level, they envisioned worsening oversight and reducing accountability. This would then lead to increasing strain on their already limited budgets. These reasons against outsourcing to 4PL providers constitute the barriers public-sector institutions will face when attempting to integrate 4PL providers in the Philippines' pharmaceutical supply chain. Institutions discussing 4PL provider integration must carefully address these barriers. The participants who saw utility in outsourcing to a 4PL provider expressed that it could, at the management level, improve oversight and accountability and at the staff level reduce workload. In regard to their institution budgets, they hypothesized seeing reduced costs in the supply chain because of the training and capacity building their staff will receive from the 4PL provider. This could further materialize in time saved due to increased efficiency. This favorable outlook represents the focal points on which 4PL providers can be introduced to public-sector institutions and civil servants. In addition, it was recognized that the expertise of the 4PL providers would improve product availability and reduce the levels of expired stock

Stakeholder pathway to decision making in regard to 4PL provider integration

This report's findings constructed stakeholders' pathways to formulating an opinion on the integration of 4PL providers in the pharmaceutical supply chain. This seven-step, two-part pathway (figure 6) comprises the processes and steps for considering the introduction of 4PL providers.

During the interviews. all study participants processed the subject of discussion through the same four steps. In Step 1, they discussed their perceptions of the supply chain system, while in Step 2, they recognized the weaknesses of the current system. Next, the interviewer proposed 4PL provider outsourcing as a solution to the identified problems and gaps (Step 3). Stakeholders then diverged on separate paths, either for (Step 4A) or against (Step 4B) integrating 4PL providers into the supply chain.



Note: Steps 1–4 were conducted by stakeholders. Steps 5–7 constitute this study's recommended steps to enable informed decision making.

Figure 6. Pathways to understand and decide in leveraging 4PL providers

At this point, seven interconnected reasons against 4PL provider integration were enumerated by participants. These formulated the primary barriers to 4PL provider integration in the supply chain, including fear; loss of power; and loss of control over activities, resources, staff, and future growth. Participants feared that 4PL provider outsourcing would be a step backward in self-sufficiency and independence of their institution. These fears are indicative of confusion and misunderstanding about the role of 4PL providers. This generated and underlined their unwillingness to partner with 4PL providers. It constitutes the highest barrier to 4PL provider outsourcing, rendering participants unable to make an unbiased decision on their willingness and preferences.

Recommendations

For stakeholders to conduct an accurate assessment of the impact 4PL providers will have on the supply chain and for public- and private-sector institutions to make an informed decision on their preferences regarding 4PL provider outsourcing, the purpose and role of 4PL providers must be clearly outlined and defined, all confusion and misunderstandings in regard to outsourcing to 4PL providers must be addressed, and stakeholders must be empowered to make information-based assessments and decide accordingly. This must be added to the stakeholder's decision making pathway.

The pathway of stakeholders stopped at Step 4A or 4B, as illustrated in the top half of figure 6. This study found that some participants had incorrect preconceived notions about 4PL providers, their potential roles in the supply chain, and their possibility for outsourcing. This report recommends that Step 5, 6, and 7 be integrated into their process before they make a decision. Step 5 is defining the purpose and role of a 4PL provider, Step 6 is addressing unfounded misunderstandings regarding 4PL providers, and Step 7 is empowering stakeholders to make an information-based assessment.

Step 5 should clarify the specific tasks that a 4PL provider would be allocated in the supply chain. This should explain how 4PL provider contracts are carried out and outline the parameters of cooperation in this form of public-private partnerships. Step 6 should address the fears of participants regarding the effect of outsourcing on management, staff, budget, and the efficiency of the entire supply chain system. This will ease stakeholder fears that are rooted in uncertainty and misinformation. Step 7 is the point at which stakeholders can make an informed decision on 4PL providers and public-private partnerships.

The process to determine whether 4PL provider partnerships should be utilized in the Philippines must integrate the components of education and empowerment outlined in the recommended steps. This must occur before stakeholders and institutions state their willingness and preferences on the integration of 4PL providers in the Philippines pharmaceutical supply chain.

Strengths and Limitations

Limitations

The report's findings should be interpreted in the context of the following limitations:

- Rapid PEA
- Small sample size
- Social acceptability/desirability bias
- Data translation

This study was conducted as an RPEA with limited resources and a short timetable. The sample size was small, restricting the breadth of data collected. The study participants did not have a clear understanding of 4PL providers, which was both a finding and a limitation. This affected how participants formulated their opinions and statements, which were based on their specific understanding of 4PL providers and were, in some cases, flawed and/or incorrect. As with all interview-based qualitative studies, there is a risk of social acceptability/desirability bias, which occurs when participants provide responses to questions based not on their thoughts but on what they believe the interviewer wants to hear or what they believe is the most socially acceptable response. This can also manifest as a reluctance to provide answers that reflect negatively on the participant, their employer, or the systems within which they live and work. The incorrect translation of interviews could be a threat to the validity of qualitative research because it can reduce the richness of interview content. In this study, the Philippines data set was translated from Filipino/Tagalog to English. To minimize any disconnect between meaning as experienced by study participants and meaning interpreted in the results, the study used the same person to interview the participants and conduct the translations. The interviewer was fully knowledgeable about the participants, the interactions, the tone of the interviews, and the information exchanged. This significantly reduced the threat that translation poses. Furthermore, the use of only one translator reduced the introduction of bias stemming from the involvement of multiple translators.

Strengths

The study was conscious of actively reducing researcher-introduced bias. This was a way of bolstering the qualitative rigor and validity of the work. The presence of outsiders or foreign interviewers can create a barrier in interviews, and this study worked with Filipino experts in-country. The interviews were conducted by local researchers accustomed to the social context, culture, and customs of the stakeholders. Having these well-trained experts leading data collection minimized the outsider effect, easing contact with stakeholders and creating a comfortable rapport.

OPERATIONAL CAPACITY ASSESSMENT

As part of the process to determine the feasibility of engaging a 3PL or 4PL provider, it is necessary to have a quantitative view of the current supply chain operational capacity. The Operational Capacity Assessment Tool (OCAT), an Excel-based data gathering and assessment support tool, was developed with a maturity model methodology to:

- Review the current public-sector supply chain performance in those geographical areas selected for involvement in the project and the potential for improvement by implementing 3PL and/or 4PL provider strategies
- Investigate potential private-sector 3PL and 4PL providers with regard to their ability to engage with the public sector and deliver the potential operational improvements

The data gathering methodology has been detailed in a previous section of this report. It should be noted that the project team allocated maturity level scores to questions that had not been answered by the interviewees. These scores were informed by the scores provided to other questions and comments made by the interviewees.

The public-sector OCAT had 34 attributes in 8 sections covering:

- Logistics management information systems and organization structure
- Governance
- Human resource management
- Monitoring and evaluation
- Forecasting and quantification
- Infrastructure (technical and physical)
- Procurement activities
- Warehousing and distribution

Each attribute was described under 5 levels of maturity that were allocated a score from 0 to 4. Consequently, a total score for the overall supply chain in each geographic area could be calculated and the potential for improvement identified. A few questions required a yes or no answer. A score between 0 and 4 was allocated by the project team based on the respondent's yes or no answer, the comments of interviewees made at the time of the interview, and answers to other related questions.

The private-sector OCAT focused on obtaining data regarding the organization in such areas as:

- The date the organization was established
- The status of the company (e.g., independent company, member of a larger entity)
- The size of the business in terms of the most recent annual turnover
- The scale of the operation in terms of:
  - Number of employees
  - Warehouse space
  - Vehicle fleet size
- The names of major clients
- Operational IT systems

- The nature of the services provided to the supply chain market but not the organization's ability to deliver those services effectively

Although the maturity model approach was deployed to structure the private-sector discussions, the scoring technique was not deployed as many of the commercially sensitive questions went unanswered and requests for data to support the answers that were received were not fulfilled. However, a qualitative assessment of the various organizations interviewed was undertaken and took into account the interview answers that were provided and an examination of websites in the public domain.

OCAT ANALYSIS FINDINGS

The public sector

As a result of the key selection criteria, detailed in an earlier section of this report, the following geographical areas were selected as project participants from within the DOH:

- Bicol Region
- Cebu Region
- NCR

Each of the 34 attributes could score a maximum of 4 points, for a maximum possible score of 136. The difference between the scores achieved by each region and the maximum possible score of 136 indicates the overall scope for supply chain performance improvement. The results for each public-sector region are as follows:

Bicol Region

A consolidated OCAT response was produced after input from four members of the overall SCM team:

- Statistician
- Administrative officer
- Program coordinator
- Procurement officer

The consolidated maturity scores are presented in table 7.

Table 7. The overall OCAT scores: Bicol Region

OCAT SECTION	Consolidated Maturity Score
LMIS and organization structure	2.20
Governance	2.50
Human resource management	3.17
Monitoring and evaluation	2.60
Forecasting and quantification	1.00
Infrastructure (technical and physical)	1.67
Procurement activities	4.00
Warehousing and distribution	2.00
Total score	***86***
Average maturity level	***2.5***
Percentage of maximum possible score	***63%***
Potential improvement percentage	***37%***

The main points of the OCAT response are as follows:

- An overall average maturity score of 2.5 and a percentage of the maximum possible score of 63% indicate considerable room for performance improvement in the region.
- A maturity score of 2.2 in the area of logistics information systems and organization structure reflects the lack of an integrated supply chain organization and IT systems developed in house. The end-to-end supply chain organization consists of independent units in the areas of in-country physical distribution, procurement, and forecasting at the local program level. While performance monitoring software is available, a Monitoring and Evaluation Unit within the SCM team has yet to be established.
- The forecasting and quantification activity received a particularly low maturity level score. However, procurement activities received a perfect score. As there is a strong link between the two activities and the procurement activity is rated highly, the situation may result in high levels of expired stock and/or a considerable number of stock-outs. KPIs in these critical areas of inventory efficiency were not available to the project team.
- The sections of the OCAT relating to the physical and technical infrastructure and the warehousing and distribution operation also received below average maturity scores. The score allocated to infrastructure suggested that the resources were of good quality but were lacking in quantity. However, the score achieved in the section focusing on warehouse and distribution activities suggests that the quality of the facilities could be improved.

Initial indications suggest that an overall improvement of 37% in maturity could be achieved by the SCM team in Bicol Region. While a best practice 3PL or 4PL provider relationship could address many of the areas of weakness, further work is required prior to making a decision regarding the most effective way of delivering the improvements to the health care supply chain in the region.

Cebu Region

The SCM team produced a consolidated response to the OCAT template (table 8).

Table 8. The overall OCAT scores: Cebu Region

OCAT SECTION	Consolidated Maturity Score
LMIS and organization structure	2.40
Governance	2.00
Human resource management	2.17
Monitoring and evaluation	2.40
Forecasting and quantification	1.50
Infrastructure (technical and physical)	1.33
Procurement activities	3.75
Warehousing and distribution	2.80
Total score	***81***
Average maturity level	***2.40***
Percentage of maximum possible score	***60%***
Potential improvement percentage	***40%***

The main points of the OCAT response are as follows:

- An overall average maturity score of 2.4 and a percentage of the maximum possible score of 60% indicate considerable room for performance improvement in the region.

- An average maturity level in the area of logistics information systems and organization structure reflects the lack of an integrated supply chain organization. The end-to-end supply chain organization consists of independent units in the areas of in-country physical distribution, procurement, and forecasting. While performance monitoring software is available, a Monitoring and Evaluation Unit within the SCM team has not been established.
- The forecasting and quantification activity received a particularly low maturity level score. However, procurement activities received a relatively high maturity score. As discussed above with regard to the Bicol Region, the situation may result in high levels of expired stock and/or a considerable number of stock-outs. KPIs in these critical areas of inventory efficiency were not available to the project team.
- The section of the OCAT relating to the physical and technical infrastructure received a below average maturity score. Despite a maturity score of 2.8 with regard to warehousing and distribution, the section response confirmed the view expressed in the section dedicated to the technical and physical infrastructure that resources were regarded as inadequate.

Initial indications suggest that an overall improvement of 40% in maturity could be achieved by the SCM team in Cebu Region. While a best practice 3PL or 4PL provider relationship could address many of the areas of weakness, particularly regarding the quality of warehousing facilities, further work is required prior to making a decision regarding the most effective way of delivering the improvements to the health care supply chain in the region.

NCR

The response from the NCR SCM team was provided by one pharmacist. The consolidated maturity scores are presented in table 9.

Table 9. The overall OCAT scores: NCR

OCAT SECTION	Consolidated Maturity Score
LMIS and organization structure	2.60
Governance	3.50
Human resource management	3.33
Monitoring and evaluation	2.60
Forecasting and quantification	1.50
Infrastructure (technical and physical)	2.00
Procurement activities	4.00
Warehousing and distribution	2.60
Total score	***98***
Average maturity level	***2.9***
Percentage of maximum possible score	***72%***
Potential improvement percentage	***28%***

The main points of the OCAT response are as follows:

- An overall average maturity score of 2.9 and a percentage of the maximum possible score of 72% indicate room for performance improvement in the region.
- As in the other regions, a below average maturity level in the area of logistics information systems and organizational structure reflects the lack of an integrated supply chain organization. The end-to-end supply chain organization consists of several independent units in the areas of in-country physical distribution, procurement, and forecasting. While performance monitoring software is

available, a Monitoring and Evaluation Unit within the SCM team has not been established. However, the section dedicated to governance stated that oversight of supply chain activities was performed formally by the Management Committee.

- The forecasting and quantification activity received a particularly low maturity level score. The activity is undertaken as a Central Office function when required. However, procurement activities received a very high maturity score. As discussed above with regard to the other regions, the situation may result in low levels of inventory efficiency.
- The sections of the OCAT relating to physical and technical infrastructure and warehousing and distribution indicate that while the facilities were satisfactory from a quality perspective, they were inadequate from a quantity perspective.

Initial indications suggest that an overall improvement of approximately 30% in maturity could be achieved by the SCM team in the NCR. While a best practice 3PL or 4PL provider relationship could address many of the areas of weakness, particularly regarding the quantity of warehousing facilities, further work is required prior to making a decision regarding the most effective way of delivering the indicative level of improvements in the region.

Overall OCAT summary

For the public sector as a whole, the overall short- to medium-term objective should be to achieve a score of at least 3 in each attribute under review. The DOH management team must establish the extent to which this can be achieved by strengthening the current processes or engaging with a 3PL provider. The longer-term aim is to leverage the expertise of 3PL or 4PL providers to achieve a score of 4 in each element of the OCAT maturity model. While procurement is an essential element of the end-to-end supply chain, it is considered unlikely to be conducted by a 3PL provider in the initial stages of adopting a best practice outsourcing strategy. It is essential that the benefits of a best practice 3PL provider relationship are achieved prior to engaging a 4PL provider for the procurement activity. It is recognized that outsourcing is undertaken to some extent by the supply chain teams in each region under review. However, they are standard traditional contracted arrangements and do not reflect the characteristics of a best practice 3PL or 4PL provider model.

The actions required to develop an initial best practice relationship and start to gain benefit can be summarized as follows:

- Select a particular flow of all products from the ports of entry via the central storage facilities to a significant geographical area of usage with the aim to identify a pilot supply chain with stakeholders that have shown a positive attitude toward best practice outsourcing. Based on their positive response during interview process, it may be appropriate to consider either Bicol or Cebu for implementation.
- Assess the legal provisions with regard to the regulations governing the deployment of non-asset owning organizations as logistics service providers to the public sector. Such advice is needed to inform the decision related to adopting a 3PL, 4PL, or LLP strategy.
- Although this activity has already been highlighted as essential, it is worth repeating that developing a detailed dossier of the current situation in terms of shipment volumes, operating costs, service levels delivered, IT systems, organization structures, and network assets of the pilot supply chain is a key initial task.

- Identify the key areas for improvement by undertaking a gap analysis vis-à-vis a best practice supply chain. The results will highlight the areas of the supply chain that a 3PL provider might be needed to support, such as limited SCM expertise within the DOH team, inadequate storage facilities, unreliable mechanical handling equipment and delivery vehicles, high levels of stock-outs and expired stock, poor IT systems, lengthy internal communications due to the existence of organizational siloes, an inability to adhere to budget expenditure levels, and warehouse inaccuracies in terms of picking quality and stock accuracy.
- Review the current contracts with particular reference to the number of logistics service providers involved and the termination dates of those contracts. Explore whether a potential LLP is among the current logistics service providers and the remaining time to complete the contract.
- Review the current organization structure(s) with the aim of identifying the key entity in the DOH/POPCOM that will be the focal point of contact with the selected 3PL provider. Restructure the roles, responsibilities, and reporting lines to facilitate more direct communication between the DOH/POPCOM and the 3PL provider.
- Identify skills gaps and training/coaching/mentoring needs of the DOH personnel identified as leading the contract management of the selected 3PL provider. Initiate the educational resources needed to close the identified gaps and organize the various types of educational input.
- Develop draft contracts, SOPs, and SLAs for circulation to short-listed potential suppliers.
- Engage with potential 3PLs/LLPs with the aim of assessing their ability and willingness to work with the DOH in a more collaborative manner and make a decision regarding the holding of individual meetings or a potential supplier conference.
- Move to more formal discussions and input from the potential 3PL providers. Issue confidentiality agreement documents and detailed quantified services to potential 3PL providers to enable them to demonstrate their understanding of the concept and associated level of expertise.
- Develop a limited list of potential suppliers and undertake a typical request for quotes for final selection and negotiation.

In the event that the potential logistic service providers are unwilling or unable to engage in a collaborative manner, the early work undertaken by the DOH team will support the development of a supply chain strengthening initiative for the pilot supply chain. The process, once benefits have started to accrue, can be rolled out in stages nationally

The following section explores the extent to which the private sector could provide the expertise to work with the DOH to achieve the required operational improvements.

The private sector

The project team interviewed several organizations from the private sector offering logistics services. The interviewees included pharmaceutical importers and distributors as well as companies offering a wide range of logistics services. Some of the companies were currently providing logistics services to the DOH via standard traditional contracts that tend to be:

- The result of a tendering process with little or no input from potential contractors
- Short, in terms of years, making the development of long-term relationships difficult
- Limited regarding the communication and monitoring processes to be enacted by both client and contractor

- Primarily cost focused and based on rate schedules rather than reward mechanisms benefiting both parties

The following companies were interviewed:

- AAA Pharma
- Medethix
- Nonpareil International Freight and Cargo Services Inc.
- Pharmaserv Express Inc.
- Royal Cargo
- Ximex Delivery Express
- XVC Logistics

Table 10 provides a summary of the key findings for each private-sector company included in the OCAT process. Comprehensive notes for each company may be found in Appendix IV: Operational Capacity Assessment Tool Private-Sector Logistics Service Providers (Research Summaries).

Table 10. Summary of key OCAT findings from private-sector engagement

Logistics Service Provider	Business Life	Public-Sector Experience	Range of Services Offered	Best Practice Policies	Information Technology Investment
AAA Pharma	Established in 2003	Work undertaken for the DOH, LGUs, and POPCOM	The importing and distribution of pharmaceuticals and health care equipment	SLA deployed	Information in this area was not available to the project team
Medethix	Established in 2009	The client base includes the DOH, Philippines Pharma Procurement Inc. (PPPI), and LGUs	In-house and outsourced logistics of imported drugs	Best practice supply chain policies included a SLA and Super Green Lane Certificate	Information in this area was not available to the project team
Nonpareil International Freight and Cargo Services Inc.	Established in 1990	The national government, including the DOH, is a current client	Customs clearance, warehousing, and a range of transport services are offered, including international freight forwarding	Best practice policies include SLAs, designated contacts for each client, and regular KPI reporting	Investments have been made to manage the various offerings, with around 400 permanent staff
Pharmaserv Express Inc.	Established in 2015	The DOH is among a number of public-sector clients	Temperature-controlled logistics services to both the public and private medical logistics markets	Best practice policies include SLAs, nominated contacts, and regular KPI monitoring	Considerable investment has been made in the areas of temperature monitoring, performance assessment, and vehicle tracking
Royal Cargo	Established in 1978	National (DOH) and local public-sector experience has been gained over the years	A wide range of logistics services in both ambient and temperature-controlled conditions	Best practice has been introduced as a result of working with leading private-	Areas of IT system investment include warehouse management, consignment tracking, and electronic POD

Logistics Service Provider	Business Life	Public-Sector Experience	Range of Services Offered	Best Practice Policies	Information Technology Investment
				sector companies	
Ximex	Established in 1988	The client base includes several elements of the national government	A full-service logistics operation, including contract logistics	Continuous improvement process and quality reviews are in place	Significant operational IT system investment has been undertaken, including order tracking
XVC Logistics	Established in 2002	The company provides logistics services to the Department of Education	End-to-end supply chain services including forecasting, warehousing, multidrop distribution, and waste disposal	Working with leading private-sector clients, the company has deployed a range of best practice policies	IT systems have been introduced to meet the needs of demanding private-sector clients (e.g., automated KPI reporting)

Given the service offerings identified from the private-sector OCAT, the DOH could establish a best practice 3PL provider relationship in the short term and improve the effectiveness of the health care supply chain. However, until considerable further quantitative analysis has been undertaken by the DOH, the nature of any 3PL or 4PL provider relationship cannot be defined in detail. While some of the larger organizations can provide both ambient and temperature-controlled facilities and vehicles, it may be necessary for two organizations to collaborate to provide the temperature ranges required in those geographic areas where the larger organizations do not provide a service.

SUMMARY OF OCAT FINDINGS

The findings of the OCAT relating to both the public and private sectors are summarized below.

- The private sector has several professional logistics companies that could provide the expertise needed by the DOH to improve the health care supply chain by having:
  - Current and past experiences working with public-sector organizations
  - Private-sector clients operating best practice supply chain operations
  - Developed and implemented IT systems providing end-to-end supply chain visibility
  - Integrated operational IT systems with the in-house systems of their clients to provide support for:
    - Day-to-day communications and operational information
    - Forecasting and quantification activities
    - Monitoring and evaluation processes
    - Budgeting for on-going activities, specific projects, and unforeseen events
  - Clear communication and reporting processes by deploying designated contract personnel who deliver the targets of the jointly agreed SLAs
  - An in-depth understanding of the logistics services marketplace in their areas of operation
  - Additional supply chain resources, as required, through subcontracting on behalf of their clients,
  - Access to financial resources, particularly those companies that are part of a large group, that enable the rapid acquisition of additional distribution infrastructure when required

- The public-sector OCAT showed strengths in the procurement capacity element such as regular development of procurement plans, availability of a dedicated procurement unit and staff to execute procurement operations, and ability to manage contracts.
- The analysis of the public-sector OCAT also indicated that there was potential to improve the effectiveness of the health care supply chain in all areas of the operation. Each geographic area had different areas of focus for improvement. Of particular interest was the need to integrate the organization of the various elements of the SCM team in all of the geographic areas investigated. This is an essential task even if the geographic region decides to implement an in-house improvement plan rather than enter into a best practice outsourcing relationship to improve internal communications and decision making. Should the decision be made to adopt a 3PL or 4PL provider strategy, the synchronizing of the organization structure of the DOH and the selected 3PL or 4PL provider partner will be a prerequisite to delivering the anticipated benefits.
- In the event that the public sector could not deliver improvements quickly by an in-house improvement plan, implementing a best practice 3PL provider relationship in the short term and possibly a 4PL provider relationship in the medium term is likely to be the most effective way to deliver the potential supply chain benefits.
- The existence of private-sector pharmaceutical distributors could provide the basis for a 4PL provider relationship. In addition to the in-depth procurement expertise, distributors also deploy IT systems that would support the data analysis required for effective forecasting and quantification activities, which are regarded as weak in all of the regions researched by the project team. Further, the distributors have experience with both in-house and outsourced distribution operations. The combination of logistics expertise and advanced analytical experience could form a sound basis for a 3PL provider relationship initially and subsequently a 4PL provider relationship. The key difference between a 3PL and a 4PL provider relationship is the ability to deploy IT systems for the benefit of the client to support operational improvements, procurement effectiveness, and performance monitoring.

In the absence of quantitative data, the OCAT has provided a useful starting point to assess both the potential for improvement in public-sector health care supply chains and the capabilities of private-sector 3PL and 4PL providers to provide best practice supply chain services. Regardless of the data gathering difficulties experienced by the project team, it is clear that there is considerable room for performance improvement in the public-sector health care supply chains in the regions of the Philippines that were reviewed. It is also clear that the private-sector logistics service provider market has companies able to provide best practice services to the DOH. The information gained from the study is a valuable starting point for the further, detailed work that will be necessary to progress the 3PL and 4PL provider discussion in the Philippines.

COST-BENEFIT ANALYSIS

ECONOMIC EVALUATION

The cost-benefit analysis was performed to estimate the total cost of the current public health supply chain in the Philippines. Establishing these baseline costs will allow an incremental cost analysis to assess how these supply chain costs will change with the introduction of 4PL provider-coordinated supply chains. Categories for all relevant supply chain costs were identified from the descriptions of the alternate supply chain systems being compared and focused mainly on costs that are likely to differ. The analysis evaluated costs associated with procurement, warehousing, distribution, and management/system support functions restricted to the FP commodity supply chain in the three regions (Bicol, Cebu, and NCR) selected based on the key selection criteria. Costs of the FP supply chain were estimated from the central warehouse to SDPs (health care facilities) in the public health sector.

Interviews

Nine of the 14 stakeholders interviewed work in the public health supply chain in the Philippines. These comprised 2/5 at the central level, 3/3 in NCR, 3/3 in Bicol, and 1/3 in Cebu. All stakeholders provided a good overview of the public health supply chain relating to the level where they were operating, including FP commodities. The FP supply chain, operating in parallel to the public health supply chain for the rest of the commodities, was described as co-managed by the DOH and POPCOM. The central DOH procures FP commodities for delivery to the regions, while POPCOM is responsible for the distribution through its partner 3PL provider. The DOH regional supply chain officers provided a good deal of information on the general supply chain but were not able to provide specific details about the FP supply chain. This was largely because the majority of FP commodities were managed by POPCOM, with the regional office only being involved in procuring and distributing smaller quantities of FP commodities. The level of detail and quality of the information provided varied across the three regions. Details of the documents and information made available for this analysis are provided in Appendix V. All interviewed stakeholders were able to provide most of the documents requested, including budgets and actual expenditures, distribution lists, organograms for the supply chain, warehouse storage capacities, list of facilities, and transportation contracts. However, these were not directly applicable to the FP supply chain, which is managed by POPCOM. Specific operational details and costs associated with the FP supply chain were obtained from the DOH M&E department and POPCOM.

The DOH M&E unit provided data on quantities of FP commodities allocated and delivered by POPCOM to regions across the country. This information also included the cost of these commodities. The DOH supply chain management system provided information on the storage capacity for the DOH central warehouse (including space allocated for FP commodities). MTaPS staff provided information on standard 3PL provider transportation rates from the central to the regional level and commercial rental rates for warehouses. POPCOM provided information on budgets, warehouse storage capacity, warehouse staffing requirements, and distribution lists for Bicol only.

DATA ANALYSIS

Data provided during interviews and from supporting documents was neither sufficient nor compatible with the Rapid Supply Chain Modeling Tool's input data template. Several country-specific, simplifying assumptions had to be made to estimate the procurement, storage, transportation, and management costs.

The FP supply chain

The Philippines FP supply chain is co-managed by the DOH and POPCOM. The DOH is primarily responsible for forecasting and procurement of commodities, while POPCOM is responsible for logistics management (storage, delivery, and distribution) of FP commodities and demand generation throughout the country. The FP supply chain is made up of four main operational tiers through which FP commodities flow: Tier 1 (Central), Tier 2 (Regional), Tier 3 (LGUs), and Tier 4 (SDPs).

FP commodity throughput (volumetric data)

Annual throughput for FP commodities in the Philippines was only made available in absolute quantities of products allocated and shipped to each region (DOH M&E). Several assumptions were made to estimate warehousing costs when storage capacity was not available or if weight (kg), which was required to estimate transportation costs because all contracted transportation rates were based on weight, was missing (figure 7). Commodity volumes were estimated by first calculating the number of cases per given number of units and then applying the volume per case using commodity specifications provided in the USAID Contraceptive and Condom Catalog 2017.[6] Using a similar approach, weights (kg) of commodities were estimated by multiplying the estimated number of cases by the weight per case using commodity specifications from the USAID Contraceptive and Condom Catalog 2017.

[6] US Agency for International Development (USAID), June 2018. Overview of Contraceptive and Condom Shipments, FY 2017. Washington, D.C

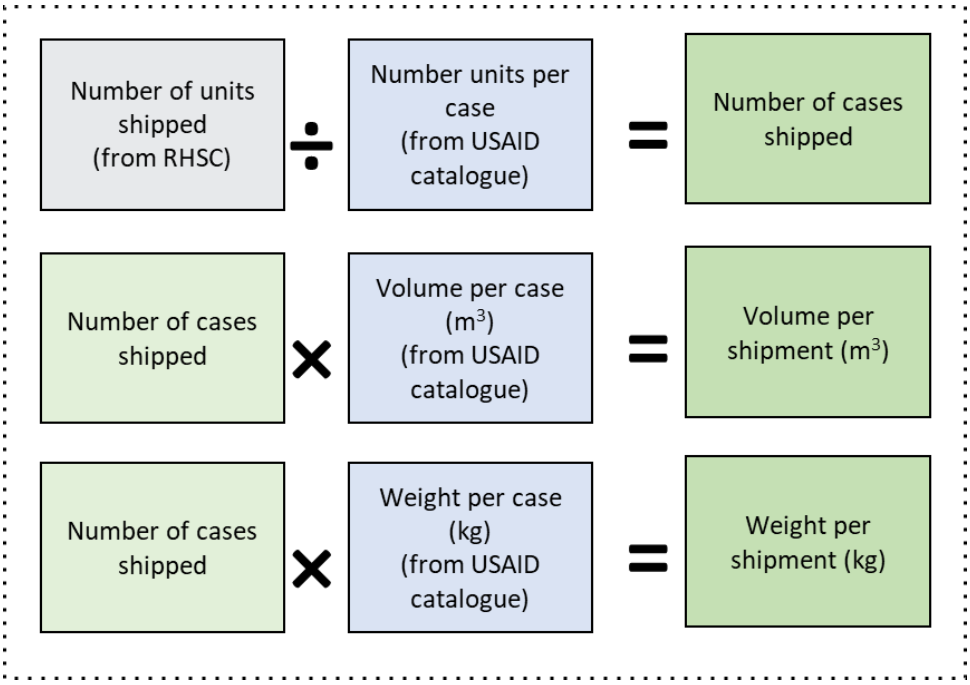


Figure 7. Approaches used to estimate commodity volume and weight

Procurement

The procurement of FP commodities is carried out mainly by the central DOH office, with minimal procurement done at the regional, provincial, and municipal government unit levels. We applied a markup fee of 20–25% to the value of commodities procured to estimate the cost of FP commodity procurement based on information provided by a private logistics partner in the Philippines. We estimated the value of FP commodities flowing through the Philippines FP supply chain using the absolute quantities of commodities allocated and shipped to each region and the unit costs for each commodity (data from DOH M&E).

Warehousing (storage and handling)

FP commodities procured for the public sector are mainly stored at the DOH central warehouse in Metro Manila and six POPCOM warehouses (POPCOM central warehouse in NCR and warehouses in Regions V, VI, IX, XI, and XII). Storage capacities for the central and regional warehouses were obtained in terms of pallet spaces or m^2. For simplicity, we assumed that one cubic meter (1 m^3) of commodities could be stacked on a pallet.[7] The amount of dedicated storage for FP commodities for the DOH central warehouse (145 m^2) and three POPCOM regional warehouses (Bicol [Region V] – 138.5 m^2, Cebu [Region VII] – 500 m^2, and NCR [POPCOM central] – 144 m^2) were provided. The average storage size (261 m^2) for the warehouses was applied to the rest of the regional warehouses to estimate storage costs. Storage costs (fixed warehousing cost) for FP commodities were estimated by applying storage rates (costs) per m^2 per month for rented ambient temperature pharma-grade space (obtained from a 3PL provider through MTaPS) to the storage capacity (in terms of volume [m^3] and/or pallet spaces) available for FP commodities per month. Information on storage capacities at LGUs and SDPs was not

[7] World Health Organization (2015). Estimating the capacity of storage facilities. Technical supplement to WHO Technical Report Series, No. 961, 2011.

available, so we estimated storage space requirements for the volume of FP commodities delivered at SDPs following guidance described in The Logistics Handbook and applied storage rates (costs) per pallet per month.

To estimate staff and warehouse management costs at the central and regional levels, we assumed that each warehouse has, at a minimum, three personnel dedicated to FP commodities (warehouse supervisor - pharmacist, FP logistics coordinator, and utility worker) based on information provided by the NCR POPCOM. We applied the per capita monthly cost inclusive of benefits and health maintenance organizations for these personnel categories and extrapolated the costs to one-year costs by multiplying by 12. Monthly cost data (salaries) were estimated using the salary of government employees in the Philippines based on the Salary Grade Table for 2021 under the Salary Standardization Law. We used mid-point step (step 4) salaries for each staff category (warehouse supervisor - Salary Grade 15, FP logistics coordinator - Salary Grade 13, and utility worker - Salary Grade 3).

Transportation

The distribution of FP commodities in the Philippines is based on allocation or distribution lists made by program managers at different levels of the supply chain (central, regional, provincial, and municipal). The distribution of all FP commodities is done using contracted 3PL providers from the central to the regional level, a hybrid of contracted 3PL providers and in-house transportation from the regional level to LGUs, and in-house transportation from the LGUs to the SDPs. Distribution costs for each level of the supply chain were estimated by applying the current region-specific contract cost per kg of commodities to the estimated weight of commodities allocated and delivered to each destination in the supply chain. In addition to the cost per kg of commodities, insurance, the standard local charges of House Air Waybill Fee and value-added tax were included in the distribution cost. Information on in-house transportation costs was not available, and costs from current 3PL contracts were assumed across all tiers. Using current private-sector costs to estimate current public-sector costs when in-house public-sector costs are not available is likely to underestimate the total public-sector costs and the scale of potential benefits.

Management and supervision

Costs associated with FP SCM activities (e.g., monitoring and provision of technical assistance, repairs and maintenance of warehouses, maintenance, operation of FP logistics hotline) were only made available from one facility (POPCOM central warehouse). We estimated the proportional contribution of these costs to the total costs for warehousing, distribution, and SCM. For this analysis, SCM costs for the other facilities were estimated by assuming a percentage markup based on data from one warehouse (POPCOM central warehouse) to the total warehousing and distribution costs.

Currency

All data on costs were collected in the local currency, Philippine Peso, and reported in 2021 US dollar prices (estimated using the average exchange of 50 Philippine peso per USD in 2021).

Throughput and procurement costs

Data obtained from the DOH M&E unit showed that 23,928,376 units of FP commodities across all contraceptive methods with an estimated value of USD 8,417,418 were allocated for distribution in the Philippines in 2020. A total of 19,241,204 units of FP commodities were delivered to regions across the

country. The estimated quantity, volume, weight, and value of commodities managed in the FP commodity supply chain in the Philippines are shown in table 11. The quantities of each FP commodity delivered to each region in FY 2020 are shown in Appendix VII.

Table 11. Annual throughput of FP commodities in the supply chain

					Commodities allocated			
Region	**# of LGUs**	**# of SDPs**	**Quantity allocated**	**Quantity shipped**	**Cases (#)**	**Volume (m^3)**	**Weight (kg)**	**Value (USD)**
DOH central warehouse	122	30,303	23,928,376	19,241,204	28,255	1,271	201,290	8,556,963
POPCOM central warehouse	56	13,759	9,439,660	8,928,056	10,309	458	71,406	3,056,814
POPCOM regional hub 5	15	3,762	2,281,208	1,871,208	2,280	118	20,461	745,096
POPCOM regional hub 6	15	5,120	4,858,580	2,804,580	6,960	305	46,793	2,101,017
POPCOM regional hub 9	12	2,628	1,279,408	1,269,008	1,278	51	7,675	385,384
POPCOM regional hub 11	12	2,592	1,978,824	1,978,824	2,104	100	16,123	660,512
POPCOM regional hub 12	12	2,442	4,090,696	2,389,528	5,323	239	38,832	1,608,141

Total supply chain costs

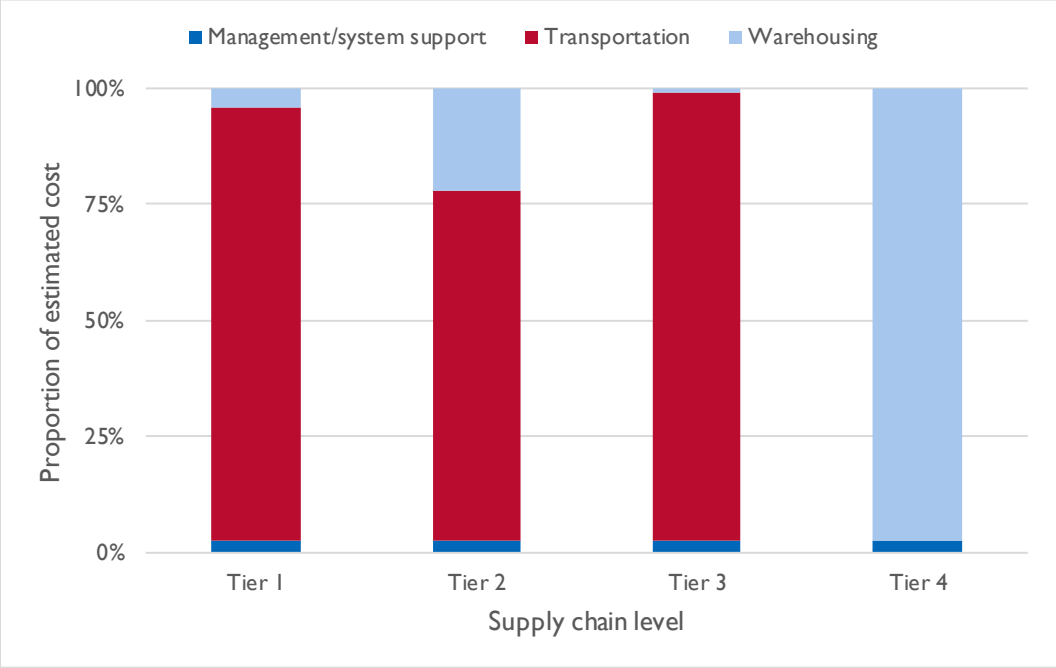
The total annual supply chain cost for FP commodities in the Philippines was estimated to be USD 7,619,227, largely driven by the estimated cost of transportation (USD 5,158,849) and procurement-related activity cost (USD 1,711,393), comprising 67% and 23% of the total costs, respectively. FP commodities are centrally procured by the DOH, and procurement activity cost represents 48% of the supply chain cost in Tier 1. Although it is understood that some procurement does take place at the local government level, this analysis assumed no procurement of FP commodities was done at the lower levels and no costs were incurred. The distribution of costs across tiers reflects the different roles and levels of activity of each function at each tier. The total costs did not vary widely across the lower tiers, largely because of the simplifying assumptions used in estimating them (table 12 and figure 8).

Table 12. Estimated supply chain costs by tier

Function	**Estimated cost (USD)**				
	Tier 1	**Tier 2**	**Tier 3**	**Tier 4**	**Total cost**
Procurement*	1,711,393	0	0	0	1,711,393
Warehousing	71,410	504,108	12,295	12,295	600,108
Transportation	1,719,616	1,719,616	1,719,616	0	5,158,849
Management/system support	46,301	57,486	44,772	318	148,877
Total cost	**3,548,720**	**2,281,211**	**1,776,683**	**12,613**	**7,619,227**
*Procurement cost is estimated as 20% of total FP commodity value (USD 8,556,963).					

WAREHOUSING COSTS

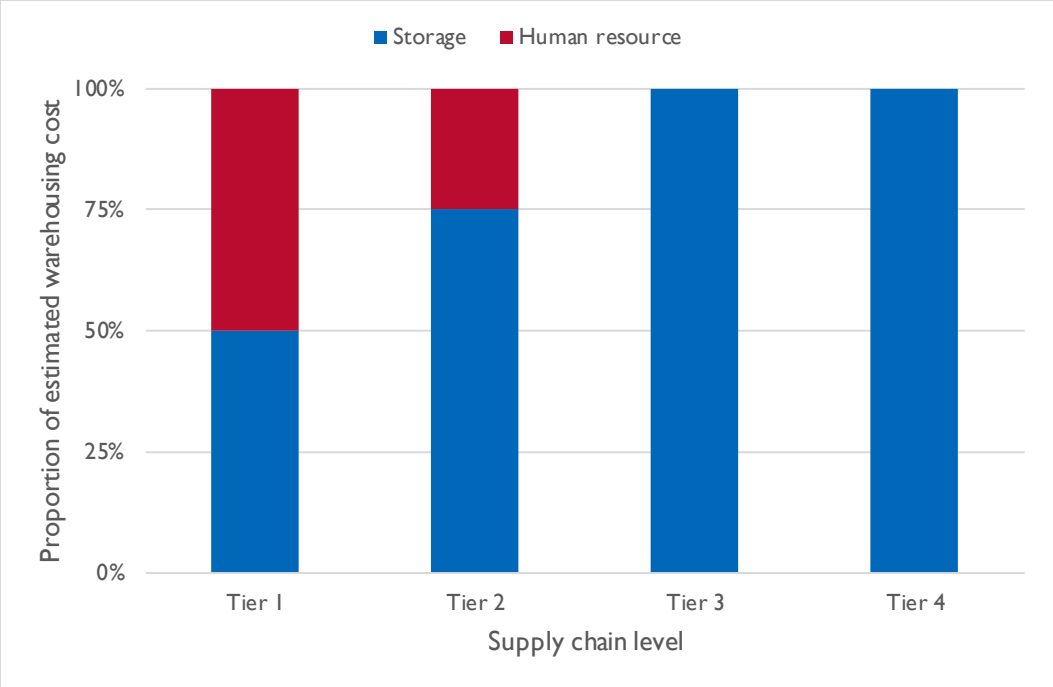
The estimated total warehousing cost was USD 600,108. A huge component of this cost (USD 504,108) was incurred in Tier 2, where six regional warehouses are used for the storage and distribution of commodities. Warehousing costs in Tier 1 are much lower than in Tier 2 because a single warehouse was assumed to be in use, and storage of FP commodities is integrated with other commodities. The storage space allocated for FP commodities at the DOH central store was used to estimate warehousing costs. Storage of FP commodities in Tier 2 is done using dedicated warehouses, resulting in substantial warehousing costs. The estimated warehousing costs for Tiers 3 and 4 are similar because we used the volume of commodities passing through the tiers to estimate storage requirements and costs, assuming no losses at any level.



Tier 1=national level, Tier 2=regional, Tier 3=provincial and municipal government units, and Tier 4=SDPs

Figure 8. Distribution of supply chain costs by function and tier

In this analysis, warehousing costs comprised storage and human resources cost (figure 9). Overall, the major component of warehousing cost was storage space costs, contributing to 73% of the total warehousing costs. Storage costs contributed 50% of the warehousing costs in Tier 1, 75% in Tier 2, and 100% in Tiers 3 and 4. Information on human resource requirements in Tiers 3 and 4 was not available but was assumed to be minimal; hence, only storage costs were estimated.



Tier 1=national level, Tier 2=regional, Tier 3=provincial and municipal government units, and Tier 4=SDPs

Figure 9. Distribution of warehousing costs by tier

TRANSPORTATION COSTS

The estimated transportation costs (table 13) are similar for Tiers 1, 2, and 3 because the weight of commodities delivered to each tier was used to estimate the cost. Information on the actual weight of commodities delivered was not available; hence, the quantities delivered to each region were used to estimate weight using commodity specifications from the USAID Contraceptive and Condom Catalog 2017. The quantities of commodities (and estimated weight) delivered to each region were estimated and moved between tiers assumed to be constant, hence the same estimated cost.

MANAGEMENT/SYSTEM SUPPORT COSTS

While warehousing and transportation costs could be estimated using both available in-house information and current contract rates for outsourced activities, estimating management and system support is much more challenging. Two approaches have been used to provide a range of costs for the activity and sensitivity of those amounts within the overall supply chain costs.

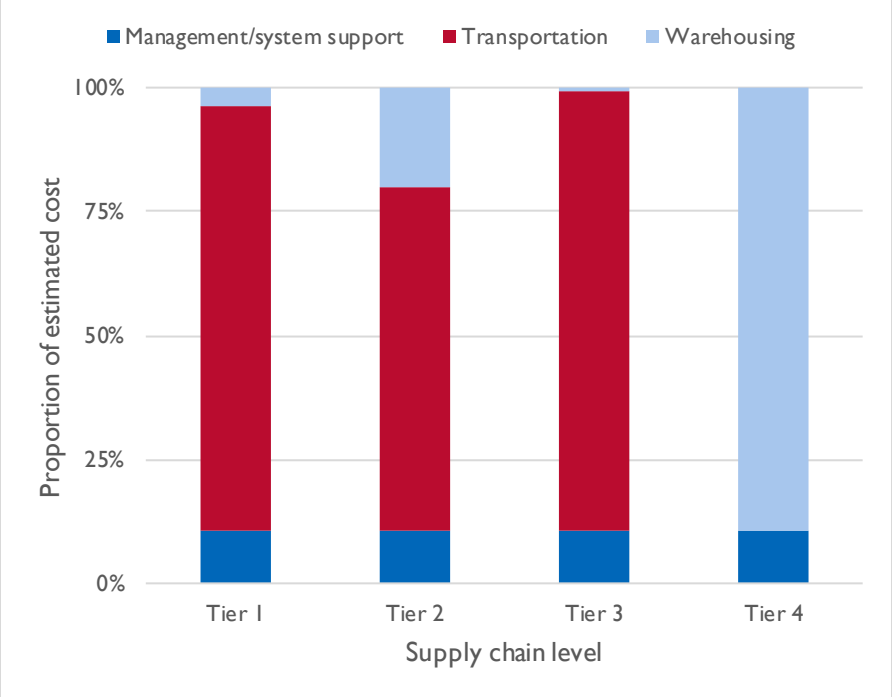
The costs associated with FP SCM activities, obtained from work and financial plans made available by the POPCOM central warehouse, were estimated to be USD 855,019. This represented 5.4% of the total supply chain costs for warehousing, distribution, and management in that facility. By applying this percentage as a markup to the total warehousing and distribution costs for the rest of the facilities, we estimated the SCM costs to be USD 46,301 (Tier 1), USD 57,486 (Tier 2), USD 44,772 (Tier 3), and

USD 318 (Tier 4). This results in total management/system support for the FP supply chain of USD 148,877 (table 12).

An alternative analysis that assumed a 12% markup (instead of 5.4% as used above) to the total warehousing and distribution costs resulted in higher estimated SCM costs of USD 214,923 (Tier 1), USD 266,847 (Tier 2), USD 207,829 (Tier 3), and USD 1,475 (Tier 4). This results in total management/system support for the FP supply chain of USD 691,075 (table 13).

Table 13. Estimated supply chain costs by tier with 12% markup of management cost

	Estimated cost (USD)				
Function	Tier 1	Tier 2	Tier 3	Tier 4	Total cost
Procurement*	1,711,393	0	0	0	1,711,393
Warehousing	71,410	504,108	12,295	12,295	600,108
Transportation	1,719,616	1,719,616	1,719,616	0	5,158,849
Management/system support	214,923	266,847	207,829	1,475	691,075
Total cost	**3,717,342**	**2,490,571**	**1,939,740**	**13,770**	**8,161,424**
*Procurement cost is estimated as 20% of total FP commodity value (8,556,963).					



Tier 1=national level, Tier 2=regional, Tier 3=provincial and municipal government units, and Tier 4=SDPs.

Figure 10. Distribution of supply chain costs by function and tier

Note: Management costs estimated using differential markup percentages for each tier

Analysis

A full cost-benefit analysis that measures all the costs and consequences of the alternative supply chain approaches in monetary terms was not feasible. Measuring all consequences and placing a monetary value on them is challenging. The potential impact of 4PL provider-coordinated public health supply chains could be evaluated by comparing resource use and costs in comparison to the current systems. However, it was not feasible to perform this analysis because the alternative 4PL provider-coordinated public health supply chain had not been fully proposed or implemented, making it impossible to estimate the associated costs and benefits. Basic supply chain cost metrics in terms of cost per USD of annual throughput, cost per m^3 of annual throughput, cost per kg of annual throughput, cost per USD 1,000 of commodities, or cost per percentage point of stock availability can be estimated, representing average cost-effectiveness ratios. However, without an appropriate comparator, these metrics do not answer the decision question and are not presented here.

DISCUSSION

An understanding of public health supply chain costs is important for informing better decision making on supply chain policy formulation, design, planning, budgeting, and overall system management. Accurate cost estimates can be used as the basis for tracking costs and negotiating outsourcing agreements for functions such as transportation or warehousing.

We used existing data and data made available by different stakeholders to estimate FB commodity supply chain costs in the Philippines. The estimated supply chain costs in this analysis can serve as a baseline for evaluating 4PL provider-coordinated supply chains; however, the estimates carry several potential limitations that should be considered.

The main strength of this analysis lies in the use of actual data on FP commodities allocated and delivered to all regions in the country. However, these data and the rest of the data used in the analysis were available only up to the regional level. All calculations are done from the POPCOM regional hubs down to the SDPs, assuming no losses or expiries of commodities occurred between the different tiers of the supply chain. This is likely to overestimate supply chain costs (storage and distribution costs in cases where they were based on commodity volume and weight).

In addition, these data were presented in absolute quantities and required several transformations to estimate supply chain costs. We used commodity specifications from the USAID Contraceptive and Condom Catalog 2017 to convert these absolute quantities into the volume (required to estimate storage requirements and costs) and weight (required to estimate costs) of commodities. The accuracy of these estimates, therefore, relies on whether these specifications are in line with specifications for commodities distributed in the Philippines. The POPCOM Work and Financial Plans for 2021 had a budget for shipping and forwarding of FP supplies of 5,153,644 Philippine Peso (USD 103,073). POPCOM indicated this cost was for shipping FP commodities to regional offices across the whole country. Based on the assumptions used in this analysis, the estimated total cost for transportation of commodities from the central to the regional level of USD 1,719,616 is 17% higher than the budgeted costs.

This analysis used warehouse storage capacity data obtained from three POPCOM warehouses and applied the average store capacity (based on these three) to calculate the costs for the other three regional warehouses. One of the regional warehouses (Bicol) reported a high storage capacity (500 m^2), which skewed the average store capacity used in the analysis and resulted in high costs. Total warehousing costs could be lower than the estimates presented here if storage capacities are lower than assumed in this analysis.

We applied 3PL provider rates to estimate storage and transportation costs due to the unavailability of data. Stakeholders interviewed indicated that all the buildings used as POPCOM regional warehouses were owned by the government; however, building costs (value) or repair costs were not easily available. Therefore, we used available commercial rental rates to estimate warehousing costs. However, we applied information provided by stakeholders on human resource requirements using government salaries to estimate manpower costs. Availability of actual building and repair costs for the warehouses may result in more accurate cost estimates.

Although POPCOM uses a 3PL provider company for the distribution of FP commodities to the different regions of the country, a hybrid of contracted 3PL providers and in-house transportation is used from the regional level through to SPDs. The use of 3PL provider rates across all supply chain costs may result in incorrect cost estimates. Further assessment of these operations is necessary to understand these costs.

Data collection was very challenging because it was done using online interviews in the middle of the COVID-19 pandemic. Arranging interviews was particularly a big challenge as stakeholders were busy with COVID-19-related issues.

SUMMARY

Detailed comparisons among the current levels of operating costs, associated levels of service, and future best practice 3PL and 4PL provider relationships are difficult without the involvement with the logistics service provider market. It is essential to understand that the aim is to obtain value for money and enhance the cost and service balance.

In a best practice 3PL provider relationship, the service provider would typically undertake the following activities:

- Selecting additional warehouse and transport service resources beyond those owned and operated by the 3PL provider
- Undertaking rate negotiations and establishing sub-contract arrangements, including SLAs
- Working with the client's team regarding day-to-day operations and resolving operational issues as necessary
- Producing performance data and attending regular reviews
- Gaining an understanding of future order volumes and new customer destinations
- Developing annual budgets and managing communication with the individual management teams involved

- Managing the IT system interfaces with the various supply chain elements (e.g., order processing, warehouse activities, route planning, delivery documentation, truck global positioning system [GPS], performance monitoring)

3PL provider benefits could come from rationalizing a multi-contract situation with a single logistics service level provider offering a range of coordinated services. Engaging a single 3PL provider with a larger contract could reduce costs. In addition, service level improvements could be facilitated as a result of the public-sector management team focusing collaboratively on a single service provider.

The activities undertaken by a 4PL provider in a best practice relationship build on those undertaken by a 3PL provider, as follows:

- Selecting, as a non-asset owner, warehouse and transport service providers to meet the operational needs of the client
- Undertaking rate negotiations and establishing contractual arrangements, including SLAs
- Managing integrated IT systems to ensure that data are available for analysis
- Developing revised procedures and operational techniques based on the data analysis
- Working with the client's team and teams of the various 3PL providers regarding day-to-day operations
- Reviewing the performance of the 3PL providers and developing summary reports for the client's senior management team
- Establishing the future needs of the client in terms of product details, order volumes, additional geographic destinations, additional service requirements, and storage and distribution conditions

Initially, a 4PL provider relationship may result in slightly higher costs but improved performance levels, as the fixed costs associated with the 4PL provider management team are incurred before the team commences rationalizing contracts, making use of its knowledge of the market, and enhanced buying power. While some organizations use a percentage of costs to determine a management fee, a fixed sum reflecting the size of the team, systems, and overhead is a more equitable method. Once the 4PL provider has collected and analyzed operational data, it will be able to recommend changes that will reduce costs and increase service levels. The 4PL provider needs to be incentivized to identify potential cost reductions in a long-term relationship for the mutual benefit of all parties involved. Targets need to be incorporated into the supply chain strategy and the documents relating to SLAs.

A small 4PL provider team is likely to increase the level of costs in the short term only marginally. However, the longer-term benefits could be significant. Although initial quick wins may generate 5–10% cost savings, it will take a collaborative effort over a period of years to generate further cost savings and performance improvements. It is important to understand that the best practice relationships are two-way in nature. The client needs to commit to working with the service provider in a collaborative manner to provide the agreed inputs, resources, and information to enable the service provider to deliver the target benefits.

The general situation regarding the costs and benefits of maintaining the status quo, pursuing a best practice 3PL provider relationship, and implementing a 4PL provider strategy are presented in figure 11.

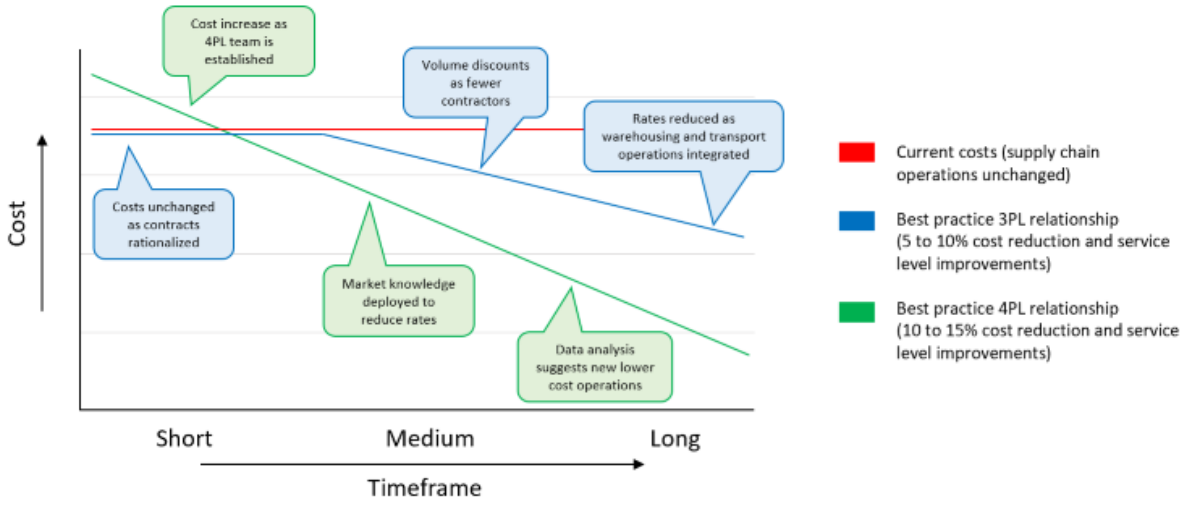


Figure 11. Projected 3PL and 4PL provider cost curves

Any potential savings and service level improvements will be determined by the starting point regarding these two key aspects of SCM and the extent to which the national supply chain has been the focus of senior management's activities in recent years.

While the project team was unable to develop a costed comparison of current and potential future operational models, there are examples from the private sector in the public domain:

- Hospital groups in the southwest and northeast United States worked with Distribution Concepts International (DCI) in a 4PL provider capacity to reduce costs by 15–20%.[8]
    - In the southwest, the group incurred freight costs of USD 3.2 million per year. DCI utilized its in-depth knowledge of the 3PL provider marketplace to find its client a different service provider and generate savings of USD 500,000 per year.
    - The group in the northeast had historically managed several 3PL providers in an informal manner, incurring annual costs of USD 2.5 million. After reviewing the current costs and service levels, DCI helped its client achieve savings of USD 350,000 per year by introducing a more effective outsourcing strategy.
- Penske Logistics, a leading 4PL provider in the US, has collaborated with many clients in the health care sector to lower costs, improve service levels, and reduce the administrative burden, which benefits both its clients and their patients.
    - Its clients' customers (health care facilities) indicated that inventory required storage space that could be better deployed as patient treatment areas. Penske introduced more frequent

[8] https://www.dci4pl.com/case-studies

deliveries, supported by monitoring technology to ensure the reliability of the new schedules, to facilitate the conversion of storage space to clinical areas.
    - Cost reductions were made possible by introducing dedicated vehicle fleets, supported as needed by vehicles and drivers from other contracts and Penske's rental fleet. Technology investment enabled increased operational visibility, route optimization, and backhaul opportunities.

- In the UK, Wincanton, a leading supply chain partner for UK businesses, has recently been awarded a five-year contract with fashion retailer Primark to provide transport services to its 200 UK stores.[9] The Wincanton and Primark teams will work together to deliver a successful transformation of Primark's transport operations.

    - Both teams are committed to working together to introduce a number of operational improvements, including a 15% reduction in the distance traveled by the distribution fleet.
    - While the associated reduction of total supply chain costs is welcomed, the key driver is the need to reduce carbon emissions and support the environmental aspirations of both Wincanton and Primark.

- The automotive sector, which has long been regarded as a leader in the area of SCM, has deployed the 4PL provider concept over many years.[10] For example, in Europe, Opel, a General Motors company, engages collaboratively with GEFCO, a 4PL provider organization focusing upon the automotive sector:

    - 220 individual 3PL providers are managed by GEFCO's 4PL provider division for both inbound and outbound movements. The scope of activities includes purchasing, tendering, contracting, and invoicing.
    - Unique tools are available to the 4PL provider division to enable data analysis to be undertaken in support of supplier rationalization, network planning, and routing optimization.
    - The relationship has existed for many years, and the current four-year contract is expected to continue generating annual savings of 5–7% by achieving further efficiencies in manufacturing, logistics, and purchasing.

Private-sector companies would not adopt the technique unless it generates a return on investment for their businesses. It is not always related directly to cost reduction. A modest increase in cost may be needed to generate service level improvements that customers find attractive, which subsequently attracts new customers, increases market share, and enhances profitability.

A considerable amount of traditional outsourcing has taken place in the Philippines with a number of service providers. The devolved nature of the government structure in the country makes managing the supply chain in an end-to-end manner difficult. Utilizing a small number of 3PL providers, each one managing several links in the network in a best practice manner, could overcome some of the issues

[9] https://www.wincanton.co.uk/news-and-media/press-releases/wincanton-transform-primarks-uk-supply-chain/
[10] Marcus Williams, Automotive Logistics, October 2018. https://www.automotivelogistics.media/opel-tasks-gefco-with-further-cost-reduction/21778.article.

associated with the current lack of an integrated SCM philosophy. The annual total spend on pharmaceuticals is estimated to be USD 400 million. The operational supply chain costs associated with the distribution of that spend are considered significant given the dispersed insular terrain of the country and the volume of products within the total spend requiring temperature-controlled storage and transport assets. Therefore, even a modest cost reduction would generate savings for investment in other health care services. In addition, service level and managerial enhancements would benefit both the SCM team and the patients it serves.

PUBLIC-SECTOR CONTRACT MANAGEMENT FOCUS GROUP DISCUSSION

After analyzing the results from the assessment tools, it was evident that additional information was needed to understand the capability of the public sector to engage, manage, and oversee private-sector outsourced logistics providers. Contract management is critical to establishing and maintaining a best practice 3PL or 4PL provider relationship where the public sector and the contractor interact on a regular basis to continually improve and refine the collaborative process, troubleshoot issues, and monitor KPIs. Individuals who participated in assessment tool deployment were invited to attend the focus group discussion. The following high-level topics were discussed:

- Capability of understanding public-sector needs and resources
- Availability of standard procedures and guidelines in procuring services from start to end, including bid preparation, selection, evaluation, awarding, and communication
- Service provider selection, evaluation and review capability, availability of 3PL and 4PL provider selection, and contract management capability
- Challenges and strengths in managing service contracts

Outsourcing follows a fee-for-service model. Centrally, requirements for 3PL providers are very strict (e.g., they must own their own fleet and/or warehouse) in annual contracts. The potential benefits of public-private partnerships were highlighted in a discussion about POPCOM and its interaction with the DOH. Budget cycles tend to be annual, which can make long-term partnerships precarious and inconsistent. POPCOM has three-year cycles where purchases are ensured over a long term. This type of collaboration was underscored and encouraged when discussing the benefits of best practice 3PL or 4PL providers.

The Procurement Law and its implementing rules and regulations govern many procurement and supply chain activities. For example, a procuring entity will not enter into any multiyear contract or agreement with suppliers or service providers unless the Department of Budget Management has allocated a budget for the intended period of contract or agreement. The procurement law also prohibits prequalification of suppliers or service providers. Such a legal provision could be a bottleneck to obtaining the maximal benefits from the private sector. However, further assessment of the legal framework is needed to understand the provisions, gaps, and flexibility to engage non-asset-owning providers or to recommend policy reform to leverage 4PL providers.

The siloed nature of contract awarding versus contract performance management in the supply chain space is one of the most pressing issues to address for successful contract management in the Philippines. During discussions, central, high-level staff had answers that conflicted with previous assessment tool findings or did not align with local staff responses. Central staff had intimate knowledge of strategy and policy, while local staff were more familiar with day-to-day operations. The intersection of the DOH, POPCOM, and subnational governments adds layers of complexity to SCM. Regions and LGUs have varying levels of visibility into supply chains. POPCOM has infrastructure and human resources, while the DOH has financial resources. As a result, there is little interaction among parties that should collaborate (e.g., contract officers). Supply chain management teams only manage the contract once it is approved and awarded, meaning that those contracting 3PL or 4PL providers are not

the ones managing the relationship over time. This fragmentation also affects availability of data and KPIs. Currently, only three KPIs are collected at the national level (in POPCOM):

- Percentage of deliveries scheduled for fulfillment
- Timely submission of delivery reports (seven days after completion)
- Percentage of the FP commodities/materials dispatched within 15 to 30 days upon pick-up from designated DOH warehouses over confirmed delivery notification

End-to-end supply chain oversight through a 4PL provider would make significant headway in advancing transparency and visibility.

DISCUSSION

This activity aims to explore whether private 4PL providers are a more efficient and effective alternative to current supply chain practices. Where this report identifies gaps, a deeper dive focused on identifying root cases is recommended so that targeted fixes and operational improvements can be implemented.

Public-sector supply chains aim to fulfill deliveries and maintain stock while trying to decrease end-to-end supply chain costs.[11] Best practice 3PL or 4PL provider partnerships allow for governments to focus technical expertise on core activities while reprioritizing other non-core skills and functions with the goal of creating a more agile and efficient supply chain by reducing costs and increasing service levels, expertise, and innovation.[12] A well-functioning public-sector supply chain system should have easily accessible KPIs; frequent and routine communication with any outsourced providers; satisfactory customer service; efficient inventory and warehouse management systems with limited stock loss, sufficient storage space, and operable equipment; an intact cold chain that adheres to global standards and guidelines; functional and reliable distribution vehicles; and competent staff with limited turnover.

Many reasons for the poor performance of public-sector health care supply chains can be cited, including:

- **Poor communication among the staff undertaking procurement activities and the logistics specialists within the overall supply chain management team.** Attempting to achieve low unit purchasing costs by buying in bulk often results in additional operating costs as a result of the need to acquire extra warehouse space on short notice and at premium rates and/or demurrage charges for the delay in unloading incoming containers.
- **Payment systems, particularly those related to distribution vehicle drivers, do not support an efficient operation.** The payment of a daily allowance while away from the operating base encourages drivers to negotiate trip times that are potentially longer than required to undertake the trips safely.
- **Organization structures that do not enable an integrated management of the end-to-end supply chain.** The various elements of the supply chain are often partition across several units of the DOH and associated agencies. Quantification is often undertaken by the disease prevention and control bureau while procurement is conducted by the procurement unit at the DOH as well as at regions and LGUs. In many instances, the inbound and outbound logistics are managed by different entities within the overall organization. This segmentation can result in uncoordinated decision making, with conflicts only resolved at the most senior level within the organization.
- **Infrequent distribution cycles resulting in low levels of transport asset utilization.** Undertaking only a few distribution cycles per year can result in vehicles standing idle between cycles. While this enables maintenance to be undertaken without impacting vehicle operational availability, it does not make the best use of the asset or the drivers' time. It also results in peaks in the demand for warehouse staff, either making poor use of the full-time employees' time or creating a demand for unskilled temporary staff.

[11] Wright M, Forster G, Beale J. (2017). Improving iSC performance through outsourcing–Considerations for using third-party service providers to increase innovation, capacity and efficiency. Vaccine, 35(17), 2195-2197.
[12] Ibid.

- **Limited IT systems and inefficient business processes.** In many cases, IT systems are not integrated and reflect cumbersome business processes. The lack of integration requires manual interventions to transfer data among the systems. A lack of confidence in the systems often results in paper-based systems being maintained in parallel as a backup.
- **Warehouse facilities that have not grown in size as both product ranges and product volumes increase.** Warehouse space utilization is often reported to be more than 100%. Such a situation results in an inefficient working environment, leading to delays, errors, and poor product rotation. Full warehouses do not necessarily mean that more warehouse capacity is required. A review of the inventory management and procurement processes may highlight ways of flowing product through the storage facilities rather than holding large quantities of product for long periods of time. Bulk buying creating a few large deliveries may be a false economy resulting in additional avoidable operating costs. This shortcoming is further compounded by the reluctance of management teams to write off and dispose of expired products.
- **Low asset availability as a result of irregular maintenance.** Funding for the maintenance of delivery vehicles and mechanical handling equipment often requires the release of funds from several sources, which can result in slow payments to maintenance service providers, a reluctance to provide a service to the public sector, and the irregular servicing of mechanical equipment.
- **Limited understanding of supply chain dynamics by DOH supply chain management teams.** Considerable educational initiatives have been developed and made available to many members of the DOH supply chain management teams; however, there is very little private-sector best practice experience, whether gained working for private-sector companies or managing private-sector outsourced input, within the MOH/DOH supply chain management teams.
- **Performance monitoring is regarded as a chore rather than a management tool.** Performance monitoring using KPIs tends to be undertaken infrequently and often with inadequate data input. Consequently, the supply chain management teams are not able to identify the root causes of their problems and use the information to support decision making and remedial actions.

Many of these shortcomings can be overcome by engaging best practice 3PL or 4PL providers. As the economies of many countries have advanced in recent years and manufacturing organizations have adopted best practices from high-income countries, logistics service providers have emerged to provide a range of services, including procurement, international logistics, customs clearance, and express courier services and other in-country distribution offerings.

The process of evaluating public-sector supply chains to determine the prospective benefits from outsourced logistics providers and the private sector for its capability to fulfill identified needs can be reflected in a decision framework.

DECISION FRAMEWORK

A decision framework was developed to outline the process for evaluating whether the integration of 3PL and/or 4PL providers could be beneficial for governments and DOH/MOHs based on the result of these analyses. There are five components to the decision framework to gather information and explore country-specific contexts to assist in determining whether a 3PL and/or 4PL provider partnership should be adopted:

- Understand the supply chain network and gather information
- Evaluate current costs and service levels
- Evaluate current operational capability
- Evaluate the political economy landscape
- Act and review

The following sections provide a general description of how to apply the decision framework in any context

Understand the supply chain network and gather information

The first step to understanding the supply chain network in a country is to review the supply chain strategy. A supply chain strategy is a formal plan that directs the flow of information and products in a supply chain using identified priorities to guide practical application at all levels of the supply chain. If a supply chain strategy does not exist, it should be developed before continuing to the next step. The Philippines has a national supply chain strategic plan 2019–2022 that outlines a clear strategic vision for the country with a strategic objective in leveraging the private sector. The supply chain strategy was reviewed prior to tool development to gain an understanding of the Philippines' priorities.

The second step requires an analysis of the gaps between the supply chain strategy and the current operational performance of the supply chain in terms of cost, service levels, and value for money. This high-level analysis should review current performance levels through KPIs, current costs for each key element of the operation, customer satisfaction, and overall supply chain efficiency to aid in identifying potential areas for improvement that an outsourced partner would add value to. Detailed exploration of gaps during the information gathering phase will allow for deeper dives into targeted areas once evaluation tools are deployed and can provide a better jumping off point for conversations about needs with potential outsourced providers. As this preliminary study was initiated by USAID rather than internally by the government, gaps were identified during the operational capacity assessment and cost-benefit analysis rather than in a preliminary gap analysis.

Evaluate current costs and service levels

The first two questions within the cost and service level evaluation are also applicable to operational capability. Ideally, this information is obtained by both tools (OCAT and cost-benefit analysis) to validate responses. The initial question builds off the previous information gathering section and requires governments to possess an in-depth understanding of the supply chain (e.g., SWOT, KPIs, asset inventory, networks, costs, system resources, level of outsourcing, service levels). If cost, performance, and capacity data are not known or readily available, a formal report should be compiled to guide further exploration of needs and evaluation of costs compared to current service levels.

The second question encapsulated by evaluation of costs, service levels, and operational capability aims to better determine whether the current operation of in-house resources and fee-for-service outsourcing can be improved by increasing funding and building capacity. If a country or segment of the supply chain is able to generate significant improvements internally, then the country should explore whether significant investment (e.g., more warehouse networks, vehicle fleets, infrastructure, staff capacity building) is required to realize the supply chain vision. This is an unlikely scenario for most supply chains as capacity building efforts have usually been implemented previously and investments are

often insufficient and lack flexibility to increase resources. Likely, a more efficient use of current resources will allow expenditures to fluctuate minimally while incorporating private-sector expertise.

If significant investment in infrastructure (e.g., warehouses, vehicle fleet, IT systems) and human resources is required to achieve the strategic objectives, a cost-benefit analysis should be conducted to determine whether the 3PL/4PL provider engagement or the public sector generates value for money. If best practice 3PL or 4PL provider engagement provides value for money, consider entering a best-practice 3PL or 4PL provider partnership/contract. If significant investment is not required and if the public sector provides better value for money, a change management plan should be developed and implemented to achieve the strategic vision and increase cost effectiveness. If funding isn't available and resources are constrained, engaging 3PL or 4PL providers is the best solution to maximize efficiency with current resources. Based on conversations with in-country staff in the Philippines, it does not appear that additional funding is available to augment the current supply chain, and a best practice 3PL or 4PL provider should be considered.

Evaluate current operational capability

The first two questions in the evaluation of costs and service levels overlap with the evaluation of current public-sector operational capability. Also, an in-depth understanding of private-sector capability is needed to ensure that it meets the needs of the public sector. A formal questionnaire should be developed to assess private-sector capability, organization profiles should be reviewed, and discussions should be held with partners and previous clients to supplement industry knowledge. If this information is already known or the operational capability assessment has been completed, evaluation of the political economy landscape should be reviewed. If this information has not been collected, then an in-depth analysis of the 3PL and 4PL provider marketplace should proceed, followed by the political economy landscape evaluation.

Once the political economy landscape is well understood, potential 3PL and/or 4PL partners can be identified in the applicable geographic areas and/or supply chain segments. Organizations can be contacted to learn more about their areas of expertise and capabilities. Once an organization is selected, the contract management ability of the public sector should be explored. If capacity is not sufficient, advocacy discussions with policy makers, stakeholders, and donors should commence to explore mechanisms to increase training and build capacity. If capacity exists, the solicitation and tender process can begin. In the Philippines, during focus group discussions it was mentioned that there is fragmentation between contracting officers and end users in managing existing 3PL providers. On the capabilities of the private sector, seven private-sector organizations were interviewed and deemed capable of performing the necessary functions to support identified gaps in the public sector based on their IT systems, warehousing, fleets, communication, and customer satisfaction metrics.

Evaluate the political economy landscape

Individual and organizational motivations, constraints, opinions, beliefs, and culture can have a tremendous impact on willingness to implement novel strategies and programs. When considering adoption of a 4PL provider strategy, the perspectives of all parties involved must be considered. An RPEA or, if funding allows, a comprehensive PEA should be performed to better understand the public and private sectors' willingness to engage in long-term best practice 3PL or 4PL provider relationships.

Hesitations for the private sector might include timeliness of payments or the number of official channels presented when dealing with government institutions. In the Philippines, many private-sector organizations contacted to participate in the PEA had worked previously with some areas of government and were very willing to engage in an outsourcing capacity. Past issues were largely related to timeliness of payment, but participants stated that if funding was already allocated, they would consider working with the government again.

The public sector was largely in favor of 3PL provider outsourcing and had mixed opinions regarding 4PL provider engagement. The primary factors against the use of 4PL providers were based on the perception that these providers would destabilize staff (e.g., reduce ownership, create disempowerment, create job loss); have a negative impact on management capacities of the department (e.g., worsen oversight, reduce accountability); increase strain on the institution/department budget; and not increase the utility/efficiency of the supply chain. Advocacy and educational initiatives should be launched to ensure understanding of the intent, purpose, and organization of best practice 3PL and 4PL provider outsourcing. It is critical that all stakeholders, especially in the public sector, understand that the objective of 3PL and 4PL provider implementation is actually to increase government ownership and enhance transparency in the supply chain.

Act and review

Once it has been determined whether outsourcing will be beneficial at the national or subnational level, solicitation of 3PL and/or 4PLs provider bids should be developed, and the tender process should commence. For this process to be effective, it is crucial that there is a clear understanding that the goals and objectives of outsourcing are well documented and communicated to the contractor.

3PL vs 4PL

Once the decision has been made to outsource, determining when to implement a 3PL or 4PL provider relationship is based on the maturity of the supply chain. In the short term, the focus should be on developing regular KPIs and establishing baseline data for future cost, service level, and efficiency outcomes. In the medium term, best practice 3PL provider relationships should be formed that are more than just fee-for-service transporters or warehousers. There should be regular communication aimed at monitoring performance, customer satisfaction, and troubleshooting issues as they arise. This type of relationship allows for more frequent deliveries and improves service while decreasing costs. In the long term, implementation of a 4PL provider can maximize the end-to-end efficiency of the public-sector supply chain while increasing transparency and visibility and lowering costs. Population-level impacts like lower mortality rates due to fewer stock-outs will likely be observed.

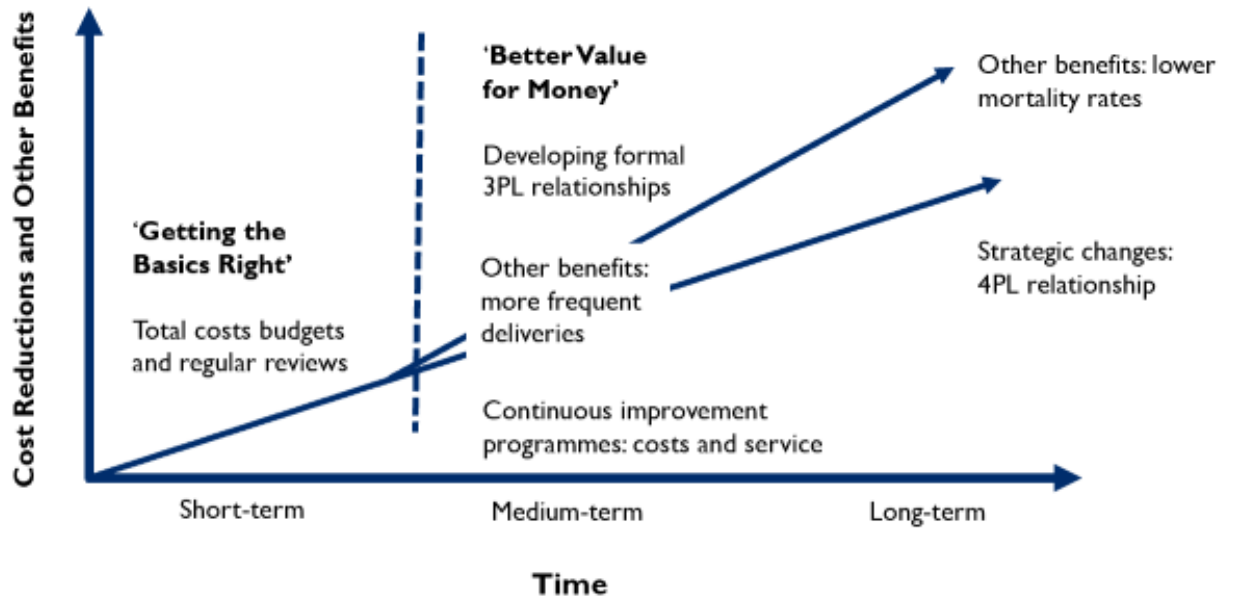


Figure 12. Benefits versus time of 3PL and 4PL providers

After the tender process is complete, the selected contractor will enter into formal contract discussions. The contracting process should be collaborative and solution orientated. Unlike fee-for-service contractors, the 3PL or 4PL provider should be encouraged to propose innovative solutions to target identified issues. Continuous review of supply chain costs relative to benefits and public health outcomes should be revised on a regular basis using best practice and pre-identified metrics like KPIs and customer satisfaction. Data use agreements, SLAs, and terms and conditions should be discussed during the negotiation phase.

Overall, moving through this decision framework offers a systematic approach to identifying gaps, evaluating costs and service levels, reviewing operational capability from the public and private sectors, and assessing the political economy landscape for determining whether to outsource. This framework is intentionally designed to be applicable to a diverse array of country and supply chain contexts.

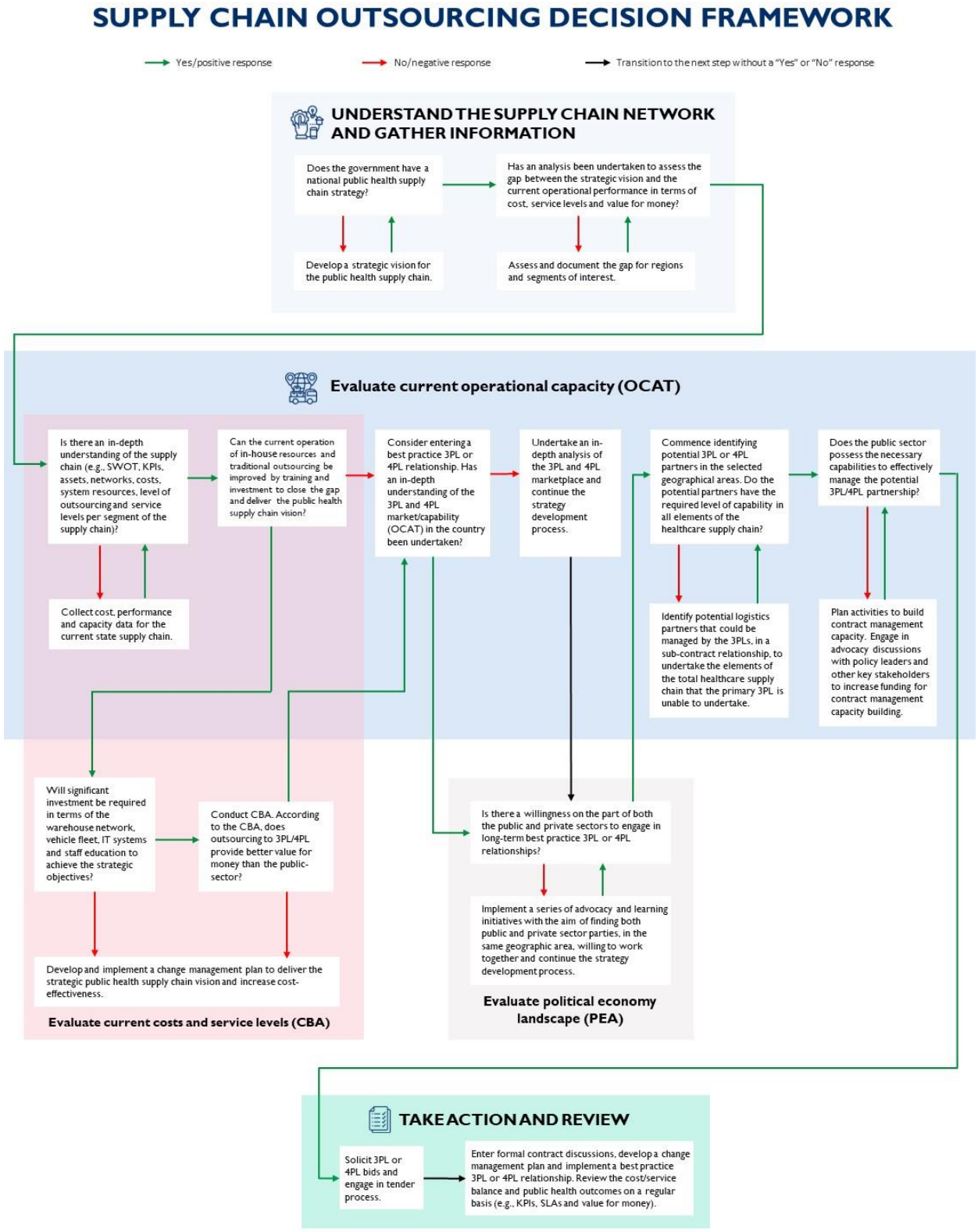


Figure 13. Supply chain outsourcing decision framework

CONCLUSION AND KEY CONSIDERATIONS FOR IMPLEMENTATION

Some outsourcing has been undertaken by the public sector, but the relationships are typically of a traditional bidding nature to deal with a particular element of the overall supply chain and follow a fee-for-service model. For example, utilizing several service providers for short-term warehouse space or transport movements is likely to require the DOH supply chain management team to manage many contracts. One of the key reasons for the shortcomings is lack of experience managing best practice 3PL and 4PL relationships. The skills required include a detailed understanding of the current levels of cost and the required levels of service, managing logistics service providers via regular review meetings and KPIs, developing two-way SLAs, and presenting future strategy objectives to the logistics service provider's contract manager. Additional educational and advocacy initiatives will be needed to overcome the misconceptions, discovered during the interview and discussion group activities, associated with best practice 3PL and 4PL relationships, including:

- **Lack of ownership.** There is a tendency to abdicate responsibility for service delivery to the outsourcing partner despite the fact that overall responsibility remains within the public-sector supply chain team. This situation is driven by the lack of understanding of the role of the client within the overall outsourced relationship.
- **Excessive cost**. The use of the private sector is often regarded as being too costly to contemplate. Furthermore, the private sector making a profit from government/donor funds is often stated as a reason against using the private sector. While the total cost of the public-sector operation is often not fully understood, private-sector operations will typically be more efficient than the public sector and deliver better value for money. Thus, the costs, while inclusive of a profit margin, are likely to be lower than the comprehensive cost of the public sector operation given the focus is on optimizing the bottom line.
- **Sustainability**. As economies grow, the need for donor support of the current type will decrease. The relationship between the public and private sectors will have matured, and the profit motive will support the increased investment by the private sector in supply chain assets. Sustainability will be the result of increases in government expenditure as economies expand and of private-sector investment as confidence in economic stability grows.

The benefits of public-private partnerships are well documented in supply chains, and there is a significantly higher likelihood of meeting cost and schedule objectives with public-private partnerships relative to the traditional public-sector project delivery, where a project is owned, managed, and financed by the government.[13] The benefits of engaging best practice 3PL or 4PL provider can be applied to the public sector in the Philippines and include:

- **Experienced staff.** Private-sector organizations in the Philippines have been able to develop and retain staff to provide their clients with a level of expertise and capability that the clients have not been able to retain within their own organization (e.g., private-sector supply chain experts managing

[13] Della Rocca M. (2017). The rising advantage of public-private partnerships. McKinsey & Company. https://www.mckinsey.com/industries/private-equity-and-principal-investors/our-insights/the-rising-advantage-of-public-private-partnerships#.

the custom clearance, storage, and distribution of vaccines and other health commodities). This experience will be available to their clients on a day-to-day basis operationally and to support strategic planning and performance monitoring activities.

- **More agile supply chain.** Being able to respond to increases in demand for supply chain resources will be made much easier by working with a successful 3PL or 4PL provider with several ongoing contracts. Professional fleet management will incorporate standby vehicles for each contract, which could be deployed for short periods of time in the event of increases in demand until more permanent assets have been procured. In the Philippines, a contract between two private-sector logistics service providers maximizes different capabilities, with one focused on warehousing of health commodities and the other supporting the distribution (transportation) with GPS tracking capability to monitor and facilitate on-time delivery.
- **Integrated IT systems.** To meet their clients' requirements cost effectively, the leading logistics service providers will have implemented integrated IT systems and business processes that embrace the end-to-end supply chain. Those systems and processes will have been tried and tested in the commercial world of the private sector. The public-sector health care supply chains in LMICs will benefit from those systems and processes as they are deployed by their logistics service providers in the areas of inventory management, customer service responsiveness, distribution planning, vehicle fleet management, performance monitoring, medium-term planning, and cost monitoring. For example, DOH contracted service provider Nonpareil International Freight and Cargo Service Inc. has customized its supply chain information system to fulfil the information requirements of the DOH. When the DOH introduces its own supply chain information system (eLMIS), it will have the capability to ensure data exchanges or integration of IT systems.
- **Routine equipment maintenance and renewal.** To minimize downtime and ensure high levels of operational efficiency, the leading logistics service providers will ensure that all of their equipment is maintained regularly. Furthermore, the mechanical handling equipment and delivery vehicles will be replaced using accepted policies based on their age and condition. Adopting best practice in this area will avoid the issues arising from the irregular funding of equipment procurement and preventive maintenance. The Philippines DOH has outsourced almost all of its health commodity transportation from central to regional warehouses, so the burden of equipment handling and maintenance is not an issue.
- **Higher levels of delivery fleet utilization**. The infrequent distribution cycles tend to result in periods of time in which the vehicles are underutilized. Logistics service providers, with a large client base with different seasonal peaks, may be able to deploy their vehicle fleet across several contracts. This sharing of assets will result in lower costs for clients and increased profitability for the logistics service provider.
- **Superior knowledge of the local logistics service provider market**. As a result of having a good understanding of their own cost base and operating profitably over the years, mature logistics service providers are likely to have a better understanding of the local market than the DOH supply chain management team. Consequently, when working with the DOH, the logistics service provider should be able to make more attractive deals than the DOH supply chain team. In addition, regular accurate data will be available for planning and budgeting purposes.
- **Contingency planning**. Risks can be mitigating by jointly identifying potential risks to the delivery of the agreed level of service. The 3PL and/or 4PL provider will consider potential risks on a regular

basis and develop appropriate contingency plans. The service provider will be driven by the profit motive, and the contingency plans can be shared with its client for mutual benefit.

There is general consensus among many Philippine staff that implementing a 3PL or 4PL provider relationship has the potential to overcome the shortcomings of public-sector health care supply chains. In broader terms, an enhanced health care supply chain will improve the overall health of the population, reduce the strain on the national health care system, and potentially enhance the economic growth of the country. However, implementing such relationships will require considerable education, mentoring, and guidance of the DOH supply chain management team to ensure that the benefits are delivered. In addition, it is essential that all current actors understand and accept their obligations to the service provider and the need to accept the discipline of communicating through the agreed reporting lines between the two organizations. There is an opportunity to improve the public-sector health care supply chains by outsourcing some or all supply chain elements to a 4PL provider, but a considerable amount of capacity development is needed to overcome the siloed nature of the Philippines' supply chains to deliver the benefits of private-sector outsourcing.

APPENDIX

APPENDIX I. PEA PUBLIC- AND PRIVATE-SECTOR PARTICIPANTS LIST

	Participant Code	Participant Workplace
Public-Sector Participants	PL_PU_01	DPCB Systems Integration Team Department of Health
	PL_PU_02	DPCB Systems Integration Team Department of Health
	PL_PU_03	Procurement and Supply Chain Management Team Department of Health
	PL_PU_04	Planning, Monitoring and Evaluation Division - Commission of Population and Development (POPCOM)
	PL_PU_05	Procurement and Supply Chain - Management Team Department of Health
	PL_PU_06	Administrative Section Center for Health Development - Bicol Region
	PL_PU_07	Supply Section Center for Health Development - Bicol Region
	PL_PU_08	Procurement Section Center for Health Development - Bicol Region
	PL_PU_09	Local Health Services Division Center for Health Development Bicol Region
	PL_PU_10	Center for Health Development Region VII
	PL_PU_11	Center for Health Development Region VII
	PL_PU_12	Center for Health Development Region VII
	PL_PU_13	Provincial Health Office Cebu
	PL_PU_14	Quezon City Health Department
	PL_PU_15	Metro Manila Center for Health Development
	PL_PU_16	Provincial Health Office Catanduanes
	PL_PU_17	Provincial Health Office Catanduanes
Private-Sector Participants	PL_PR_01	Non Pareil
	PL_PR_02	XYZ
	PL_PR_03	XYZ
	PL_PR_04	AAA Pharma
	PL_PR_05	Ximex
	PL_PR_06	PhilPost
	PL_PR_07	Medethix
	PL_PR_08	Medethix
	PL_PR_09	PPPI
	PL_PR_10	Royal Cargo
	PL_PR_11	Pharmaserv Express Inc.

APPENDIX II. INTERVIEW GUIDE: PUBLIC-SECTOR PEA

Topic	Question
Introductions	1. What is your official title? a. Can you tell me about your role?
Introductions	2. What department are you in? a. What are the objectives of your department?
Formal institutions	3. How are supply chains organized in the country at a national level? a. At a state level? b. Locally?
Ownership	4. Who has the authority to make decisions in the public sector supply chain on a national level? State level? Local level? a. Who is their supervisor? b. Who do they supervise? c. How are they held accountable for their performance?
Cost	5. How much domestic financial investment has been utilized to fund the public health supply chain (excluding the costs of the products themselves) over the last three years?
Cost	6. How much financial support has the country received from international agencies to fund supply chains over the last three years?
Cost	7. In the most recent budget, is there a budget line item for contracting supply chain services? a. If no: are there budget line items for warehousing? i. Transportation? ii. Distribution?
Formal institutions	8. What is the formal approval process for outsourcing supply chain services? a. How many formal approvals are required? b. Who is responsible within the Ministries for final approval? c. How are contracts executed? d. Does the formal approval process ever discourage outsourcing?
Formal institutions	9. Outside the formal approval process you described, are there other officials who are involved in the decision-making for outsourcing? a. If yes: who are these officials? i. How much influence do these officials have in decisions to outsource? b. How do officials provide feedback on outsourcing practices?
Decision making	10. What are the key factors you consider when outsourcing services? a. What type of supply chain services do you outsource? Why? b. What type of services remain in-house? Why? c. Who makes the decisions about what gets outsourced and what stays in-house? i. Who influences those decisions?
Decision making	11. What key criteria do you consider when selecting a provider for outsourcing? a. Who makes the decisions about which logistics providers are chosen (ie. solely MOH or other key stakeholders)? b. Who influences those decisions? c. What are your evaluation criteria for public procurements of services?
Decision making	12. When outsourcing, what aspects of the supply chain operation are important for you to maintain visibility into and why?
Sustainability	13. What do you think would make your supply chain outsourcing sustainable?
Sustainability	14. Tell me about your 3PL contracts. a. Who are your current contractors? i. If more than four: why are so many service/resource providers used? b. How were these contractors chosen? c. What were some of the key criteria for selection? d. Which stakeholders were involved in the selection decision-making process? e. How are terms and conditions negotiated? f. How do you determine the length of contracts? i. What is the process that occurs when a 3PL contract ends? ii. What is difficult in handovers between contracts? g. What areas do you believe should be outsourced?
Sustainability	15. Who manages contracts with 3PLs? a. What are some of the challenges with managing these contracts?

Topic	Question
Cost	16. Is there a cost to managing each of the outsourced contracts individually? a. If yes: what are they?
Sustainability	17. Is there anyone tasked with improving the supply chain contracting process? a. If yes: who?
Sustainability	18. What KPIs are collected for contracts? a. Are there any other relevant data collected regarding these contracts or outsourcing in general? b. Please describe the data collection process. i. Is data collection performance or results-oriented? ii. What information is most necessary from a political perspective? iii. Are tracking output indicators across various private sector contracts burdensome? If yes: what would ease this burden? c. Is data collection difficult? i. If yes: why? ii. If no: what processes have you implemented that make the process easier? d. Do you have credible indicators of 3PL performance (ie. time from warehouse to delivery, on schedule, on time/in full, proxy deliveries, stock rate) outsourcing that has been published in the last 12 months? 24 months?
Ownership	19. Do you think outsourcing supply chain operations increases or decreases ownership over supply chain management? How?
Sustainability	20. In your opinion, what are the most critical challenges in outsourcing and awarding public health supply chain contracts? a. In your opinion, how frequently are extra payments, gifts or favors used to influence the awarding of contracts? b. Are you aware of any officials who influence the award of public health supply chain contracts to friends or relatives in the private sector?
Sustainability	21. In your opinion, how frequent are corrupt practices? a. Are there mechanisms or attempts to address such issues?
Sustainability	22. Are there any concerns in regards to fraud? a. If yes: what are they? b. How are risks managed?
Ownership	23. Besides fraud and corruption, do you have any other major concerns regarding outsourcing?
Beliefs	24. Are there areas of supply chain management outsourcing that you think would benefit from increased oversight?
Ownership	25. What aspects of the supply chain are important for you to have control over? a. Please tell me more about why that is.
Cost	26. Do you believe that outsourcing activities to 3PLs is cost-effective? a. How do you think cost-effectiveness would change with the introduction of a 4PL?
Beliefs	27. When thinking about implementing a 4PL to manage and oversee 3PLs, what supply chain operations would benefit most from 4PL management? Why? a. Least?
Motivations and constraints	28. What are the biggest constraints you foresee that prevent outsourcing to 4PLs?
Informal institutions	29. Are there any reasons that would discourage you or other decision makers from using the private sector as a 3PL? a. What about using the private sector as a 4PL? b. Why or why not?
Motivations and constraints	30. What benefits and challenges could arise from private sector engagement in the public health supply chain?
Beliefs	31. How do you think current employees working in the supply chain - such as managers, warehouse workers, truck drivers - would feel about additional outsourcing? a. What advantages might they see? b. What might concern them?

APPENDIX III. INTERVIEW GUIDE: PRIVATE-SECTOR PEA

Topic	Question
Introductions	1. What company do you work for?
Introductions	2. What is your official title? a. Can you tell me about your role?
Introductions	3. What department are you in? a. What are the objectives of your department?
Formal institutions	4. How is the supply chain for your company organized?
Motivations and constraints	5. What are the opportunities for the private sector to engage in the public health supply chain?
Sustainability	6. Have you previously collaborated with the public sector? Why or why not? a. If yes: what was your experience? i. Did you experience challenges with the public sector's management of the agreement? ii. If yes: what were those challenges?
Motivations and constraints	7. What are the potential benefits that could result from public sector collaboration?
Motivations and constraints	8. Are there any reservations about engaging in the public sector? a. If yes: what are they? i. Are there any others? b. If no: why hasn't engagement occurred yet? c. How do you think the public sector feels about working with the private sector in public health supply chain services? i. Do you think public procurement of supply chain services is fair? Why or why not?
Motivations and constraints	9. Please describe an ideal public-private sector partnership. a. What are barriers to achieving this ideal partnership? b. What can be done to help attain that ideal?
Sustainability	10. Have you had any contact with the public sector contracting officials or their intermediaries in the last 12 months regarding a public health supply chain contract? a. If yes: was there any occasion where you were asked to give extra money, gift or favor (besides any official fees)? i. If yes: could you describe the situation? 1. Did you provide the money, gift or favor? a. If yes: please quantify the amount or describe the gift or favor. 2. Are there mechanisms you are aware of for reporting such bribery incidents? a. If yes: did you report it? i. If yes: what was the outcome? ii. In your opinion, how frequent are such instances in public health supply chain contracting?

APPENDIX IV. OCAT SUMMARY FINDINGS FOR PRIVATE-SECTOR LOGISTICS SERVICE PROVIDERS

AAA PHARMA

- Since 2003, the organization has been an importer and distributor of finished pharmaceutical products, hospital equipment, and medical devices.
- In addition, distribution services have been undertaken for the central and regional DOH, LGUs, and POPCOM since 2006.
- All of the work is undertaken based on SLAs and monitored through a certificate of completion process.

MEDETHIX

- Medethix was established in 2009 and for the last 10 years has operated both in-house and outsourced nationwide logistics of imported drugs.
- The company has been awarded a Super Green Lane Certificate, which allows for advance processing and clearance of shipments without physical examination by the Bureau of Customs.
- Since 2010, the public-sector client base has included the DOH, PPPI, and local government entities.
- A staff of 88 handles the administrative processes, the owned 2,000-pallet warehouse, and transport activities within Good Warehouse Practice (GWP) and Good Distribution Practice (GDP) standards.
- Performance monitoring embraces the agreed SLAs and a certificate of acceptance process.

NONPAREIL INTERNATIONAL FREIGHT AND CARGO SERVICES INC.

- The company has been operating for almost 30 years and has an annual turnover of USD 14m.
- The national government, including the DOH, has been a client since 2019.
- NIFCS has evolved from an air freight and freight forwarding business to an organization that offers a wide range of supply chain services, including customs clearance, transport and distribution, warehousing, and international freight forwarding.
- Warehousing activities are undertaken at both owned and rented facilities.
- Certifications include the International Air Transport Association and the Civil Aviation Board, and ISO 9001:2015 accreditation has been achieved.
- NIFCS is a mature business employing more than 400 people, 95% of whom are permanent staff.
- A key element of the quality system is staff development initiatives.
- Features of the relationship with customers are SLAs, a nominated member of the business development team for each client, and regular performance reporting.
- The warehouse facilities and transport operations are regarded as complying with GWP and GDP.
- NIFCS does not handle hazardous or temperature-controlled products. However, it is understood that the DOH recently awarded NIFCS a joint contract with Pharmaserv Express Inc., a leading provider of temperature-controlled distribution services of pharmaceuticals in the Philippines, to distribute COVID-19 vaccines and associated products.

PHARMASERV EXPRESS INC.

- The organization was founded in 2015 and serves the temperature-controlled needs of the medical logistics market. In addition to providing the DOH with temperature-controlled storage and distribution services, PharmaServ Express has served the Research Institute for Tropical Medicine, pharmaceutical retailer Mercury Drug, and Cordlife.
- The current level of turnover is approximately USD 12m, which will increase as a result of the recent award of a COVID-19 vaccine distribution contract, noted above.
- Although the company is organized along traditional functional managerial departments, decision making should be facilitated by the fact that the company is a sole proprietorship business.
- The 200 employees are managed by best practice HR policies, including appraisals and regular performance reviews.
- Policies and procedures have been introduced to ensure that all activities meet WHO GWP and GDP standards.

- Client management also demonstrates best practice with SLAs, nominated contacts, performance monitoring software, and a certificate of completion process.
- Considerable investment has been made in the area of IT systems, including:
    - Real-time temperature monitoring
    - GPS vehicle tracking
    - Shipment verification status

ROYAL CARGO

- Royal Cargo was founded more than 40 years ago and has many clients that are household names in the Philippines, including Jollibee, Frabelle Foods, and Dutch Mill. The company has developed best practice logistics processes, including:
    - Holding regular client reviews
    - Sharing of future plans
    - Exploring different costing and pricing methods
- Public-sector experience has been gained at both the national level (DOH) and regionally with LGUs.
- Although it employs more than 1,000 staff, the organization structure has only two reporting lines (procurement and operations), allowing efficient communications and responsive decision making.
- The company offers a wide range of logistics services from strategically located storage facilities to embrace the end-to-end supply chain in both ambient and temperature-controlled conditions.
- IT systems have been deployed in the areas of warehouse management, consignment tracking, and electronic PODs.
- Best practice client management techniques are in place utilizing SLAs, nominated contract managers, and the effective use of monitoring and evaluation software.
- The operations are conducted within WHO GWP and GDP standards.
- The quality system and the search for quality improvements are both high on the agenda of the senior directors.
- The company has achieved ISO 9001:2015 accreditation and International Air Transport Association certification.
- The company recently opened a vaccine depot providing a pharma-grade storage facility for vaccines of all kinds, including COVID-19. The temperature-controlled facility has storage chambers at:
    - +15°C–+25°C
    - +2°C–+8°C
    - Frozen temperatures to -80°C
- To support the temperature-controlled storage facilities of the company, Royal Cargo operates a fleet of refrigerated vehicles and ambient vans equipped with thermal boxes to ensure that products arrive in all parts of the country in the required condition.

XIMEX DELIVERY EXPRESS

- The company has operated for more than 30 years and has evolved from a purely freight forwarding business to a full-service logistics organization. The activities encompass land freight, sea freight, air freight, and contract logistics.
- The company utilizes the available roll-on/roll-off services to a significant extent to provide regular services throughout the country.
- The four senior officers collectively have more than 100 years of business and logistics experience.
- The company employs more than 1,200 employees and operates approximately 1,000 vehicles of various sizes and types.
- A policy of continuous improvement has been introduced and includes appropriate levels of training, performance management, and succession planning.
- The company has invested significantly in operational IT systems and, like other express logistics operators, has implemented sophisticated consignment tracking software.
- The company has ISO 9001-2008 accreditation, and the owned assets are considered to be managed to GWP and GDP standards.
- The client base includes national-level government functions, and the relationships are managed within two-way SLAs.

XVC LOGISTICS

- Established in 2002, the company has an annual turnover of around USD 6.5m and provides a wide range of supply chain services to several blue chip, fast-moving consumer goods companies.
- Experience providing services to the public sector is limited to the Department of Education.
- The company offers a range of end-to-end supply chain services, including forecasting, inbound transport, warehousing, multidrop distribution, and waste disposal.
- The company operates a fleet of 40 trucks and procures further resources as required to meet customer demand.
- The total storage capacity is approximately 5,000 pallets, and appropriate handling methods and mechanical handling equipment are deployed in the warehouse.
- Although the processes and facilities meet standards in the area of GWP and GDP for pharmaceuticals, the company does not appear to offer temperature-controlled storage and transport services.
- All supply chain functions and service offerings are represented at board level, and 10 of the 60 employees are regarded as key employees. Of particular interest is the nomination of individual contract managers for each client.
- In working with leading fast-moving consumer goods companies, the service provider has developed best practice processes of managing outsourced contracts, including SLAs, quality improvement procedures, automated production of KPIs, and regular formal performance reviews.
- XVC Logistics is a member of the Supply Chain Association of the Philippines and is SMETA accredited.

APPENDIX V. COST-BENEFIT ANALYSIS KEY INFORMANT INTERVIEWS PERFORMED

Region	Date of interview	Respondents	Remarks
Central	21/08/2021	M&E Officer	Provided an overview of the public health supply chain in the country, including FP commodities.
	28/09/2021	Supply Chain Management Service	Provided an overview of the public health supply chain in the country, including FP commodities. The role of the Supply Chain Management Service was also outlined.
		Director of SCM Services, SCM Head of Family Planning Program, CCW/CMS Manager	Not interviewed.
NCR	08/09/2021	POPCOM Representative	Provided an overview of the public health supply chain for FP commodities and POPCOM's role.
	20/08/2021	Supply Officer	Provided an overview of the public health supply chain in the country, including FP commodities.
	09/09/2021	LGA Representative (Quezon City)	Provided an overview of the public health supply chain for FP commodities in the municipality.
Bicol		POPCOM Representative	Completed by in-country consultant.
		Supply Officer	
	14/09/2021	LGA Representative (Catanduanes)	Provided an overview of the public health supply chain for FP commodities in the municipality.
Cebu		POPCOM Representative	Not interviewed.
	06/09/2021	Supply Officer	Provided an overview of the public health supply chain in the country, including FP commodities.
		LGA Representative (Cebu)	Not interviewed.

APPENDIX VI. SUMMARY OF DOCUMENTS REQUESTED AND MADE AVAILABLE FOR REVIEW

Region	Documents/information
Central (DOH M&E)	■ 2021 quarter 1 and 2 allocations and deliveries delivered by POPCOM ■ DOH allocation in 2020 ■ Costed vs actual FP commodities procured ■ FP procurement for 2019–2021
Central (DOH supply chain management system)	■ DOH central warehouse capacity ■ 2020 DOH warehouses inventory and volume
Technical assistance providers	■ Standard 3PL provider transportation rates from central to regional
NCR POPCOM	■ 3PL provider transportation contract from central to regional ■ 2020 and 2021 work and financial plans ■ Warehouse storage capacity ■ Warehouse staffing complement
NCR DOH	■ Budget and actual expenditure for 12 months (not dated, not disaggregated) ■ KPIs—type of SWOT analysis summary ■ March–August 2021 DOH allocation list for general health commodities ■ Organogram for the supply chain section ■ Warehouse space utilization and volumetric information ■ 3PL provider transportation contract ■ List and value of warehouse equipment ■ List of facilities served and travel distances from DOH Pasig Warehouse
NCR LGA (Quezon City)	■ No documents received
Bicol POPCOM	■ Warehouse storage capacity ■ Warehouse staffing complement ■ 2020 and 2021 allocation list by province
Bicol DOH	■ Corrective and preventive actions ■ 3PL provider transportation contract
Bicol LGU (Catanduanes)	■ No documents received
Cebu POPCOM	■ No documents received
Cebu DOH	■ Budget and actual expenditure for 12 months (2019–2021) ■ 2020–2021 DOH outbound summaries for general health commodities ■ Organogram for supply chain section ■ Warehouse space utilization and volumetric information ■ 3PL provider transportation contract ■ List of facilities served by the regional office
Cebu LGU	■ No documents received

APPENDIX VII. FP COMMODITIES DELIVERED TO EACH REGION IN FY 2020 (DOH M&E UNIT)

Region	COC	POP	Condoms	IUD	PSI w/ Kits	Cycle Beads
NCR	191,000	14,400	108,000	2,000	504	-
CAR	113,000	151,200	97,200	-	144	-
1	1,000,000	105,600	302,400	1,000	1,800	2,500
2	250,000	45,600	158,400	-	1,512	-
3	-	468,000	1,155,600	-	4,968	-
4A	150,000	59,600	1,602,000	-	10,008	-
4B	250,000	415,200	198,000	6,000	8,424	-
5	517,000	40,800	529,200	-	-	-
6	2,002,000	1,298,400	511,200	-	-	1,380
7	-	151,200	842,400	-	-	-
8	410,000	51,200	162,000	-	2,808	-
9	-	100,800	147,600	10,000	24,984	-
10	-	69,600	403,200	10,000	30,024	-
11	248,000	151,200	511,200	-	5,000	-
12	600,000	252,000	324,000	16,000	21,528	-
13	-	100,800	176,400	10,000	3,024	-
BARMM	364,000	91,200	489,600	6,000	4,968	1,000
TOTAL	6,095,000	3,566,800	7,718,400	61,000	119,696	4,880

CAR=Cordillera Administrative Region, COC=combined oral contraceptives, BARMM=Bangsamoro Autonomous Region in Muslim Mindanao, IUD=intrauterine devices, NCR=National Capital Region, POP=progesterone-only pill, PSI=progestin subdermal implant

APPENDIX VIII. PROCUREMENT AND WAREHOUSE COST ASSUMPTIONS

			Requirement		Total Php Cost	
Item	**Unit Cost**		**Medium Scale**	**Large Scale**	**Medium Scale**	**Large Scale**
1. Procurement Cost	Low margin: 20%	Mid-range margin: 25%	(Inventory investment in units-tablets/caps/bottles/vials based on manufacturing batch sizes)		Please simulate:	
a. Orals	80% of bid price	75% of bid price	200,000	1,000,000	Levofloxacin tab @ Php 4.12–4.67 per tab	
b. Injectables	80% of bid price	75% of bid price	20,000	100,000	Levofloxacin inj @ Php 74.25–84.15 per inj	
2. Warehousing Cost						
	Whole warehouse	Shared/ serviced warehouse	Warehouse space			
	(Pharma-grade space only)	(Rented pallets only)				
	Rate per sqm	Rate per pallet	2,000 sqm and below	2,500 and above	Please simulate:	
a. Rental (ambient)	Php 600	Php 500–550			a. Whole warehouse (include manpower and management cost)	
b. Rental (air conditioned)	Php 1,000	Php 700–750			b. Pallets only/shared space (no manpower or management cost)	

APPENDIX IX. TRANSPORTATION COST ASSUMPTIONS

Destination	**Weight**	**Rates**
Metro Manila Camavana	1st 5 kilos	Php 250.00
	Add-on in excess of 5 kilos	Php 25.00/kilo
Luzon	1st 5 kilos	Php 295.00
	Add-on in excess of 5 kilos	Php 45.00/kilo
Visayas	1st 5 kilos	Php 300.00
	Add-on in excess of 5 kilos	Php 50.00/kilo
Mindanao	1st 5 kilos	Php 340.00
	Add-on in excess of 5 kilos	Php 50.00/kilo
Additional standard local charges		
Insurance/valuation		1% of declared value
HAWB fee		Php 10.00
VAT		12% of the total charges
HAWB=House Air Waybill, VAT=value-added tax, Php=Philippine peso		

APPENDIX X. WAREHOUSE STAFFING REQUIREMENTS

POPCOM warehouse	Staff complement and salary grades
Central	■ Planning Officer II/Acting SCMO serves as Section Head supervising the day-to-day operation of the warehouse (salary grade 15) ■ Warehouse Manager/Pharmacist (salary grade 15) ■ Warehouse Officer (salary grade 13) ■ Administrative Aide V (utility worker/clerk/driver) (salary grade 5) ■ Two Administrative Assistants, including one for the FP Logistics Hotline (salary grade 7)
Regional hubs	■ Warehouse Supervisor/Pharmacist (salary grade 13 or 11 depending on budget) ■ FP Logistics Coordinator (salary grade 11) ■ Utility Worker (salary grade 3)

APPENDIX XI. MONTHLY SALARY GRADE OF GOVERNMENT EMPLOYEES

Currency: in Philippine Peso; Year: 2021

Salary Grade	Step 1	Step 2	Step 3	Step 4	Step 5	Step 6	Step 7	Step 8
1	12,034	12,134	12,236	12,339	12,442	12,545	12,651	12,756
2	12,790	12,888	12,987	13,087	13,187	13,288	13,390	13,493
3	13,572	13,677	13,781	13,888	13,995	14,101	14,210	14,319
4	14,400	14,511	14,622	14,735	14,848	14,961	15,077	15,192
5	15,275	15,393	15,511	15,630	15,750	15,871	15,993	16,115
6	16,200	16,325	16,450	16,577	16,704	16,832	16,962	17,092
7	17,179	17,311	17,444	17,578	17,713	17,849	17,985	18,124
8	18,251	18,417	18,583	18,751	18,920	19,091	19,264	19,438
9	19,593	19,757	19,922	20,089	20,257	20,426	20,597	20,769
10	21,205	21,382	21,561	21,741	21,923	22,106	22,291	22,477
11	23,877	24,161	24,450	24,742	25,038	25,339	25,643	25,952
12	26,052	26,336	26,624	26,915	27,210	27,509	27,811	28,117
13	28,276	28,589	28,905	29,225	29,550	29,878	30,210	30,547
14	30,799	31,143	31,491	31,844	32,200	32,561	32,927	33,297
15	33,575	33,953	34,336	34,724	35,116	35,513	35,915	36,323
16	36,628	37,044	37,465	37,891	38,323	38,760	39,203	39,650
17	39,986	40,444	40,907	41,376	41,851	42,332	42,818	43,311
18	43,681	44,184	44,694	45,209	45,732	46,261	46,796	47,338
19	48,313	49,052	49,803	50,566	51,342	52,130	52,932	53,746
20	54,251	55,085	55,934	56,796	57,673	58,564	59,469	60,389
21	60,901	61,844	62,803	63,777	64,768	65,774	66,797	67,837
22	68,415	69,481	70,565	71,666	72,785	73,923	75,079	76,253
23	76,907	78,111	79,336	80,583	81,899	83,235	84,594	85,975
24	86,742	88,158	89,597	91,059	92,545	94,057	95,592	97,152
25	98,886	100,500	102,140	103,808	105,502	107,224	108,974	110,753
26	111,742	113,565	115,419	117,303	119,217	121,163	123,140	125,150
27	126,267	128,329	130,423	132,552	134,715	136,914	139,149	141,420
28	142,683	145,011	147,378	149,784	152,228	154,714	157,239	159,804
29	161,231	163,863	166,537	169,256	172,018	174,826	177,679	180,579
30	182,191	185,165	188,187	191,259	194,380	197,553	200,777	204,054
31	268,121	273,358	278,697	284,140	289,691	295,349	301,117	306,999
32	319,660	326,107	332,682	339,392	346,236	353,218	360,342	367,609
33	403,620	415,728						

APPENDIX XII. A SUGGESTED 4PL PROVIDER TEAM STRUCTURE

The 4PL provider management team is a relatively small group of staff reporting to a senior member of the 4PL provider's executive team. Typically, that senior person is not heavily involved in the day-to-day operations unless serious issues have been identified by the 4PL provider team that require their attention or are escalated by the client's head of supply chain (i.e., deputy minister of health or director of pharmaceutical services). Both senior staff members will attend quarterly review meetings and annual planning and budgeting events.

The 4PL provider management team should be kept as small as possible to facilitate effective communication among parties. However, the scale of the operation and complexity of the in-country distribution network will inform the size of the overall team. Regardless of the size of the team, it will have the following general structure:

- The operations group, possibly split between:
    - Inbound team (port of entry to central medical stores)
    - Outbound team (central medical stores to health facility), including any reverse logistics activity

Both teams will report to an operations manager to ensure operational coordination. In addition, some members of the team will be required to have procurement experience in the areas of engaging and managing 3PL providers who undertake warehousing and transport activities. They will manage the day-to-day communications among the various 3PL providers involved and review performance vis-à-vis the SLAs detailed at the time of the engagement of the 3PL providers.

The operations group will communicate with the MOH supply chain group regarding in-bound flows and volumes and with the 3PL providers regarding the warehousing and distribution of these volumes. The information will be available electronically through the procurement plan, advanced shipping notes, picking lists, and distribution schedules. However, operational issues relating to the electronic information need to be resolved by communication between the MOH supply chain group and the 4PL provider operations group, followed by communication between the 4PL provider operations group and the 3PL provider management teams. The MOH supply chain group will undertake communication with stakeholders (e.g., donors) and within the MOH as required.

- The administration group could be split among:
    - A finance team to deal with the administration of payments to 3PL providers, invoices to the MOH, and POD. While most of this work will be supported by IT systems, there will at times be the need to initiate communication among the parties involved (e.g., MOH supply chain team and 3PL provider management teams).
    - An inventory team to check that the electronic records are maintained accurately and that the best practice processes (e.g., perpetual inventory, order picking) are executed effectively.
    - A performance measurement team to collect data, circulate results, and support performance reviews with the MOH and 3PL providers. Again, much of this work will be supported by IT systems.

In a relatively small operation, separate teams may not be appropriate. In this case, a small number of individuals should execute the tasks and report directly to the administration manager.

- The IT group could be split among:
    - A system maintenance team to manage day-to-day availability of critical operational systems and the interfaces among them
    - A data analysis team, which could be part of the performance measurement team in a small operation, to collate information to support decision making relating to changes to working methods

The group will communicate with the other groups within the 4PL provider and other entities, such as the MOH and 3PL providers, that have systems integrated with those of the 4PL provider.

Given that the public sector already engages in considerable outsourcing, this may seem to be a considerable overhead burden, as the tasks should already be undertaken by the various elements of the public-sector SCM group. However, research indicates that public-sector SCM groups do not follow best practices when managing the relationships. Furthermore, many of the tasks outlined above are not undertaken rigorously and the benefits of a professional outsourcing arrangement are not realized. In the event that a 4PL provider strategy is not adopted, the MOH SCM group needs to undertake all of the above activities with both in-house operations and the selected 3PL providers. The current situation is characterized by many 3PL providers being managed by various elements within the overall MOH supply chain. The adoption of a few best practice 3PL provider relationships, in which the 3PL providers subcontract some activities to other logistics companies, would ease the managerial burden on the MOH supply chain group and help realize the benefits of outsourcing as an interim step to implementing a 4PL provider strategy.

APPENDIX XIII: OPERATIONAL CAPABILITY ASSESSMENT TOOL (PUBLIC SECTOR)

1. Logistic Management Information Systems							
The objective of this section is to assess the maturity and capacity of the logistic management information systems, including ability to manage health commodities for continuous availability of such commodities at service delivery points.							
	Capacity Element/Scores	0	1	2	3	4	
1.1	Do you have a Logistic Management Unit?						Yes
1.2	Are there written roles and responsibilities of Logistic Management Unit members? If so, how are they used? How often, if ever, are expectations of members reviewed?	No clearly documented roles and responsibilities of members in the Logistic Management Unit.	Roles and responsibilities of members in the Logistic Management Unit at varying levels are being developed.	Clearly documented roles and responsibilities of members in the Logistic Management Unit at varying levels are in place, but not functional.	Clearly documented roles and responsibilities of members in the Logistic Management Unit exist for all positions, but the unit is not responsible for all the supply chain management activities (e.g., forecasting, procurement, selection, inventory management, distribution, storage and waste management).	Clearly documented roles and responsibilities of members in the Logistic Management Unit exist and manage performance expectations of members are reviewed regularly. The unit is responsible for all the supply chain management activities (e.g., forecasting, procurement, selection, inventory management, distribution, storage and waste management).	
1.3	Is there a logistic management Information system (LMIS)?						Yes
1.4	Which methods are used for the LMIS?	Paper-based LMIS are developed on an as needed basis. There is no standardized system.	Standardized paper-based LMIS.	Electronic LMIS that is not linked to the National Health (NHLMIS) with a paper-based back up.	Electronic LMIS that is linked to the NHLMIS with a paper-based back up (e.g., limited proprietary software is deployed but not integrated with LMIS).	The NHLMIS is being used with a paper-based back up (e.g., proprietary software is deployed and integrated with LMIS).	

1.5	Are there written policies, guidelines, and standards of operations for LMIS? If so, how are they used? What activities, if any, are informed by LMIS reports and data? How frequently, if ever, does training occur?	No policy is in place to guide the supply chain activities and method of LMIS.	Policy and guidelines for the supply chain activities and method of LMIS are being developed.	Policy and guidelines for the supply chain activities and method of LMIS are developed but not fully functional. Training plans are yet to be developed.	Policies are in place to guide the method of LMIS and the tools are standardized for the supply chain and health product system. LMIS indicators are tracked regularly. Not all supply chain management activities are informed by LMIS reports/data. Standard operating procedures are available for the method of LMIS but are rarely updated. Initial training is rarely updated.	Policies are in place to guide the method of LMIS ,and the tools are standardized for the supply chain and health product system. There are standardized processes for reviewing LMIS data and reports. A frequent feedback system is in place. Supply chain management activities (e.g., forecasting, procurement, selection, inventory management, distribution, storage, and waste management) are informed by LMIS report/data. Standard operating procedures are available for the method of LMIS and are revised annually. Regular training is provided.	
2. Governance							
The objective of this section is to assess the clarity of the organization's motivation, purpose, and stability by reviewing its guiding principles, structure, and oversight mechanisms.							
	Capacity Element/Scores	0	1	2	3	4	
2.1	Is there a written vision, mission, and values of the organization? If so, how are they used?	No vision, mission, and values have been developed.	One out of vision, mission, and values has been developed but is not known to staff.	Vision, mission, and values are developed and are known by a few staff but are not regularly informing strategies.	Vision, mission, and values are developed, are known by some staff, and are sometimes used to develop strategies.	A clear statement of vision, mission, and values is in place and is known and understood by all staff and stakeholders. All strategies and decision making are aligned to the mission and values.	

2.2	Is there a leadership, accountability, and succession plan? Is there a written organizational chart? If so, what does it contain? How is it used?	No available documents showing the current lines of authority and communication. No organizational chart.	Organizational chart that defines lines of authority and communication is in the process of being developed.	An approved organizational chart showing lines of authority and communication is included in the organization's manual of policies and procedures, but it is not clearly followed.	An approved organizational chart that defines lines of authority and communication is included in the organization's manual of policies and procedures and is mostly followed (e.g., regular oversight meetings, business alignment meetings, use of KPIs, and external/internal audit for decision making processes). The approved organizational chart is used to clarify lines of authority and accountability and to evaluate performance.	An approved organizational chart defines lines of authority and accountability, is included in the organization's manual of policies and procedures, and is followed rigidly without contestation.	
2.3	Does an advisory board/committee exist? If so, what is the structure? What is the average level of experience? Are there any written management roles and responsibilities? If so, how are they used? How often does the board meet?	No functioning governing committee or advisory board that provides oversight and governance for the supply chain.	The board membership is small and static and there are no formal documents that clearly defined terms of reference (TOR) that detail primary duties of board and management. The board has held no meeting after its inauguration.	The board membership is small, and formal documents that clearly defined TOR that detail primary duties of board and management are in the process of being defined. The board has held at least three meetings after its inauguration.	A committed board/committee is in place but lacks relevant experience. Meetings are held periodically, and there is an inconsistent level of involvement in the supply chain.	There is a strong and diverse board/committee comprising members with relevant experience. Regular and well documented meetings are held, and action points are followed up promptly. There is consistent and careful oversight of the supply chain according to board/committee TOR.	
2.4	Are there formal written supply chain policies, strategies, and guidelines? If so, what do they include? How are they used?	No formally documented management policies or guidelines for the supply chain system that cover inventory management, quality assurance, warehousing, procurement, forecasting, quantification, and LMIS.	Documented management policies or guidelines for the supply chain system are under development.	Some documented management policies or guidelines for the supply chain system exist and are aligned with the MOH objectives but are not used consistently.	Most documented management policies or guidelines for the supply chain system exist, are aligned with the MOH objectives, and are used regularly.	All formally documented management policies or guidelines for the supply chain system that cover inventory management, quality assurance, warehousing, procurement, forecasting, quantification, and LMIS exist, are aligned with the MOH objectives, and are used regularly.	

3. Human Resources							
The objective of this section is to assess the organization's ability to maintain a satisfied and skilled staff/volunteer workforce and to manage operations and staff time to implement quality programs							
	Capacity Element/Scores	0	1	2	3	4	
3.1	Is there a written recruitment policy? If so, how is it used? Is there a written staffing plan? If so, how is it used? Who is responsible for human resource activities? What is the frequency of staff turnover?	No documented recruitment policy or staffing plan. Human resource functions are shared among several members, and no staff have been designated to complete specific activities.	Recruitment/retention policy and/or staffing plans are still being developed. Limited staff are available to complete activities. Core competencies are not outlined or required to complete job functions (i.e., understands necessary processes, required data, and tools)	Recruitment/retention policy and/or staffing plan exist but are not in use. Staff have been informally designated to complete activities (where identified) in addition to other roles. Core competencies are under development and may not be linked to organizational structure.	Recruitment/retention policy and/or staffing plan exist but are used inconsistently. Staff positions designated in the organizational structure are partially filled. Staff are trained and functional and turnover is moderate.	Recruitment/retention policy and/or staffing plan exist and are followed consistently. Staff members are trained and functional. Staff turnover is minimal.	
3.2	Are there written job descriptions? If so, how are they used? What, if any, communication mechanisms for sharing information like this exists?	Job descriptions with appropriate qualification and communication mechanisms for sharing information across organizational units and among staff at different levels do not exist.	Job descriptions with appropriate qualification and communication mechanisms for sharing information across organizational units and among staff at different levels are being developed.	Clear job descriptions with appropriate qualification and communication mechanisms for sharing information across organizational units and among staff at different levels are in place but are used with irregular frequency.	Clear job descriptions with appropriate qualifications exist for all positions but are used inconsistently and are not used to manage performance expectations of staff. Communication mechanisms for sharing information across organizational units and among staff at different levels are in place but are ineffective.	Clear job descriptions with appropriate qualifications exist for all positions, are used consistently to manage performance expectations of staff, and are reviewed regularly. Communication mechanisms for sharing information across organizational units and among staff at different levels are used consistently and are effective.	
3.3	Do written policies and procedures exist? If so, are they provided to staff? How often, if ever, are they reviewed and updated?	Comprehensive policies and procedures are absent.	Comprehensive policies and procedures are in the process of development.	Comprehensive policies and procedures exist and are sometimes used during recruitment. Staff-related policies and procedures are given to all staff.	Comprehensive policies and procedures exist and are given to all staff.	Comprehensive policies and procedures exist and are given to all staff. Policies and procedures are reviewed and updated regularly.	

3.4	How is compensation (salary and benefits) determined? How are pay increases determined? Are benefits uniform?	No transparent system for determining salary or distributing benefits.	Salary and benefits guidance are defined and utilized.	Salary and benefits guidance are defined and utilized, but benefits are not equitably applied. Pay increments are not linked to performance appraisals and reviews.	Salary and benefits guidance are defined and utilized and benefits are equitably applied. Pay increments are not linked to performance appraisals and reviews.	Pay grades are updated annually. Pay increases occur in accordance with performance reviews. Benefits are known, and criteria for distribution exists. Salary and benefits guidance are defined and utilized. Benefits are equitably applied.	
3.5	Is there a supply chain line item in the budget? Is there a line item for supply chain workforce? If so, is it broken down into specific costs for procurement, distribution, and storage? Are funds allocated for capacity building, training, and infrastructure and technology upgrades?	Supply chain budget is only one line item with no breakdown of costs.	No budget line item for supply chain workforce.	Supply chain workforce line item exists.	Supply chain workforce line item exists, and costs can be broken down into procurement, distribution, and storage.	Supply chain workforce line item exists, and costs can be broken down into supply chain segments and administrative and support staff, with additional funds allocated for capacity building, routine training, infrastructure upgrades, and novel technologies.	
3.6	How often, if ever, does capacity building occur? If it does, what is the format? How are participants evaluated? Are records of participant involvement maintained? (Capacity building programs can be defined as in-house training that does not provide any formal degree or certification, mentorship, coaching, structured on-the-job training (OJT), e-learning programs, certificate programs, diploma programs, and masters programs)	No capacity building program available for staff in-country.	Capacity building programs are available for staff in the form of unstructured OJT.	Capacity building programs are available for staff in the form of some structured OJT and in-house training.	Structured capacity building programs are available for staff in-country, but outcomes of capacity building are not evaluated and there is no record of staff who have had capacity building.	Capacity building programs are available for staff in-country, outcomes of capacity building are evaluated, and records of capacity building are kept.	

4. Monitoring and Evaluation							
	Capacity Element/Scores	0	1	2	3	4	
4.1	Do you have a Monitoring and Evaluation (M&E) Unit?						Yes
4.2	Please describe the quality improvement system, if one exists.	No quality improvement program exists.	There is a quality improvement program and trained staff, but the system is not in use.	There is an established, ongoing system for assessing and improving the quality of services. Adequately trained staff are available but not fully engaging in this system.	There is an established, ongoing system for assessing and improving the quality of services. Adequately trained staff are available and use the system regularly. Quality improvement is regularly reported.	There is an established, ongoing system for assessing and improving the quality of services. Adequately trained staff are available and use the system regularly. Quality improvement is regularly reported and is a stated core function of the chief executive.	
4.3	What, if any, software is used for M&E data collection? How often are M&E data collected? How is that information utilized?	No routine collection of M&E data.	No appropriate software for M&E data collection. Data are collected when it is convenient and are not used or analyzed.	Software for M&E data and report collection is available. Data and reports are collected routinely but are not analyzed regularly.	Software for M&E data and report collection is available. Data and reports are collected periodically, analyzed, and discussed but are not used to support decision making or performance improvement.	Software for M&E data and report collection is available. Data and reports are collected regularly, analyzed, discussed, and used to guide decision making and performance improvement.	
4.4	Is there an M&E plan in place? Are KPIs included? If so, how are they used?	No M&E plan.	M&E plan is being developed.	M&E plan is available with limited indicators and some data collection elements.	M&E plan is fully developed, and a few elements are being implemented. KPIs are regularly produced and circulated.	Robust M&E plan with data collection tools, indicators, analysis, and data quality management. KPIs are regularly reviewed with management team and customers.	
4.5	Are best practices documented? If so, how are they utilized?	No records are kept of best practices.	Records of best practices are documented but not compiled into reports and are not disseminated.	Best practices are documented and reported but not shared.	Best practices are documented, reported, and shared only within the unit.	Best practices are documented, reported, and shared with a wide range of stakeholders.	

5. Forecasting and Quantification							
	Capacity Element/Scores	0	1	2	3	4	
5.1	Is there a team/group responsible for demand forecasting? If so, what is their approach?	There is no forecasting team and individuals are responsible for forecasting when it needs to be completed.	There is no core forecasting team, and an ad-hoc team is constituted when forecasting needs to be done.	There is a core forecasting team that carries out their assignment using a naive forecasting method.	There is a core forecasting team that carries out their tasks using established guidelines and historic data but does not perform periodic forecast reviews and assessments. Standalone spreadsheets are used by the core team.	There is a core forecast team that carries out their tasks using established processes and caries out performance reviews such as forecast accuracy, periodic assessment of consumption data, and supply plan reviews. Documented methodology, assumptions, and data sources are used for forecasting, and proprietary software is deployed in the process.	
5.2	What is the government contribution to recurring forecasting and supply planning costs?						
6. Infrastructure							
	Capacity Element/Scores	0	1	2	3	4	
6.1	Do you have adequate facilities for supply chain operations (dedicated warehouse space, office/admin blocks, steady power supply, source of water, WMIS, established governance structure)?						Yes
6.2	Please describe the physical and technology infrastructure. How does infrastructure affect performance?	Inadequate physical and technological infrastructure/tools that result in a loss of effectiveness and efficiency.	Nonfunctional physical and technological infrastructure/tools.	Physical and technology infrastructure/tools are sufficient to suit the most important and immediate needs.	Adequate physical and technology infrastructure/tools based on current needs. Infrastructure does not impede effectiveness and efficiency.	Physical infrastructure and technology/tools are well-tailored to current and anticipated future needs, well-designed, and regularly maintained to enhance efficiency and effectiveness.	

6.3	Please describe the current warehouse structure.	Not fit for purpose (e.g., using a building not designed as a warehouse for storage).	Fit for purpose (e.g., using a building designed as a warehouse for the purpose of product storage).	Fit for purpose with space for expansion.	Pharma-grade structure with appropriate storage equipment (e.g., pallet racking).	Pharma-grade with appropriate storage equipment and room for expansion.	
7. Procurement							
	Capacity Element/Scores	0	1	2	3	4	
7.1	Is there a procurement plan in place? If so, who is responsible for its execution? Are there dedicated procurement staff?	There is no procurement document/plan available.	There is a procurement plan available, but the system employed does not align with the set plan and there are no dedicated, procurement staff.	There is a procurement plan available, but the system employed does not align with the set plan and there are dedicated procurement staff who are not trained.	There is a procurement plan available, but the system employed does not align with the set plans and there are dedicated procurement staff who have been given OJT to ensure that purchases are made in accordance with systems and procedures.	There is a procurement plan available, the system employed aligns completely with the set plans, and there are dedicated procurement staff who have been properly trained to ensure that purchases are made in accordance with systems and procedures.	
7.2	Is there anyone responsible for contracting within procurement? If so, what type of training, if any, do they receive? What are their roles and responsibilities?	Little or no contracting capability within the procurement function of the organization.	Standard terms and conditions are included in the tendering process documents. Limited contract management activity relies on the legal clauses in the tender terms and conditions. This is particularly the case regarding the contracting of supply chain resources.	Contracting capability has been developed over time, by the procurement team, primarily by on-the-job experience.	Contracting is not seen as a distinct capability, but an element of the overall procurement activity. However, the procurement team has received formal contracting and contract management training.	Contracting and contract management are seen as a specific competence within the organization. The activities of tendering, contracting, and contract management are handled by different functional elements within the organization.	

7.3	Does pipeline monitoring occur? If so, how? What determine usage rates?	Once purchase orders (POs) are issued the organization does not monitor production and shipping activities until it becomes aware of a late delivery or an out of stock.	Progress chasing is undertaken based on the predicted shipping dates provided at the time of contracting and PO issuing.	A procurement system is in place that monitors delivery due dates and receipts. Late deliveries are highlighted and the organization undertakes progress chasing as appropriate.	Usage rates are monitored based on inventory management data. Discussions with suppliers are undertaken regarding the potential to bring forward or delay shipment dates as appropriate.	A system/process is in place that communicates with suppliers requesting information regarding the progress of manufacture, pre-dispatch documents, and shipping dates. The overall aim of the activity is the mitigation of the impact of delays within the pipeline.	
7.4	Does the organization have a functional procurement unit?						Yes
8. Warehousing and Distribution							
	Capacity Element/Scores	0	1	2	3	4	
8.1	Are there written warehouse guidelines and SOPs? If so, have these been implemented?	There are no guidelines or SOPs for the handling and storage of health commodities.	Guidelines or SOPs for the handling and storage of health commodities are under development.	The national guidelines or SOPs for the handling and storage of health commodities are being adapted.	The national guidelines or SOPs for the handling and storage of health commodities have been adopted in principle but are only partially implemented.	The national guidelines or SOPs for the handling and storage of health commodities are available and adhered to in the warehouse.	
8.2	Do waste management and/or disposal protocols exist? If so, how is adherence measured?	There is no available waste management and disposal protocol.	Waste management and disposal protocol use is not documented or formally approved by any regulatory body.	Waste management and disposal protocols are under development.	Waste management and disposal protocols exist but are not comprehensive and/or are not regularly followed.	Well documented and approved waste management and disposal protocols are comprehensive, include all waste categories, and are adhered to regularly.	
8.3	Is there a schedule to manage distribution? If so, how is it utilized? How often are schedules reviewed?	No policies or systems exist that outline distribution practices.	A fixed schedule has been developed with health facilities reflecting any seasonal needs.	A documented system for distribution is available but is only partially utilized.	A fixed schedule has been developed with health facilities that reflects any seasonal needs.	There is a clearly defined and documented distribution system that allows for timely and efficient distribution. Schedules are regularly reviewed with customers and adherence to the schedule is monitored and reported.	

8.4	What level of ISO accreditation has the organization achieved/is in the process of achieving (e.g., ISO 9000/9004)?	The ISO certification status of the suppliers and manufacturers is not considered during procurement.	Only products and equipment from ISO-certified manufacturers are procured.	Only products and equipment from ISO-certified manufacturers are procured and the warehouse's ISO certification is in progress.	Only products and equipment from ISO-certified manufacturers are procured and at least ISO 9001 QMS has been obtained while others are still in progress.	Only products and equipment from ISO-certified manufacturers are procured and the warehouse has all the relevant ISO certifications (i.e., 9001, 27001, 45001).	
8.5	Does the available storage area meet the minimum acceptable design, layout, and construction requirements for storage using the national warehousing standards (e.g., minimum of 1,500 euro pallet capacity, temperature control, power, access control)?						Yes
9. Storage and Transport Capability							
	Capability Element/Scores	0	1	2	3	4	
9.1	Do you use mechanical handling equipment?						
9.2	What storage methods and mechanical handling methods are deployed?						
9.3	Are the facilities owned or rented/leased by the company?						
9.4	If rented/leased, what is the length of the current renting/leasing arrangement?						
9.5	How many facilities are owned/rented/leased by the company and where are they located?						

9.6	What is the capacity of each facility (pallet size or volume)?						
9.7	What is the percentage utility of each facility?						
9.8	Please describe the storage and warehousing facilities.	Basic warehouse facilities: Sound buildings with minimal security features. Limited storage methods and mechanical handling equipment (MHE) assistance. Ambient storage facilities only.	Secure and sound facilities. Different operational areas clearly delineated. Some racking and shelving to suit the product characteristics and demand volumes. Appropriate MHE available.	A range of warehouse/storage types in terms of temperature regimes, storage methods, and MHE are available. All staff are trained appropriately for their areas of operation.	A wide range of storage techniques are available to suit product types and demand profiles. There is clear segregation of hazardous products and items requiring additional security. Back up/stand-by equipment is on site to support the main electricity supply.	Sophisticated storage systems and MHE equipment installed, such as narrow aisle racking, storage carousels, and conveyor systems. CCTV security is installed and monitored on a regular basis. Planned acquisition of additional space to suit clients' needs.	
9.9	What fraction of the transportation fleet is outsourced?						
9.10	How many trucks are operated by the organization (please provide an analysis of the total number of trucks, by size, if possible)?	The organization operates open trucks in a range of sizes. A replacement policy, on the basis of age/kms run, has not been developed and implemented.	The organization operates several types and sizes of truck to suit the needs of the clients' products. The organization does not operate refrigerated trucks.	The organization operates trucks in a range of types, sizes, and temperature regimes. A replacement policy has been implemented, and all vehicles are maintained as advised by the vehicle manufacturers.	A range of transport management techniques are in use to maximize the efficiency of the vehicle fleet, including fuel consumption monitoring, safe driving rewards, driver debriefs, and vehicle defect reporting processes. Vehicles are procured to suit the needs of the goods being carried, and drivers receive appropriate training regarding any equipment unique to particular vehicles (i.e.. load restraining equipment, tail-lifts, refrigeration systems).	Vehicles are monitored by GPS. Alerts regarding engine condition and refrigeration equipment performance are incorporated into the vehicles' communication system. Vehicles are made available at short notice to meet the requirements of new customers. Vehicle trials are undertaken prior to placing purchase orders for new vehicles.	

APPENDIX XIV: OPERATIONAL CAPABILITY ASSESSMENT TOOL (PRIVATE SECTOR)

1. Company Age and Stability							
	Capability Element/Scores	0	1	2	3	4	
1.1	What is the trading name of the company?						
1.2	What is the registered name of the company?						
1.3	Is the company a member of a group?						Yes
1.4	If YES to question 1.3, what is the registered name of the group?						
1.5	What year was the company founded?						
1.6	What is the legal status of the company?	No registration or legal right to operate in the country available.	Registration and legal status in the country are available.	Legal registration is available, but written constitution is in the process of development.	Legal registration is available, but written constitution and code of conduct are not always complied with.	Legal registration is available, and there is compliance with the written constitution and code of conduct.	
1.7	What is the advisory board/committee structure? Management roles and responsibilities?	No functioning governing committee or advisory board to provide oversight or governance for the supply chain.	The board membership is small and static and there are no formal documents that clearly define TOR that detail primary duties of board and management. The board has held no meeting after its inauguration.	The board membership is small, and formal documents that clearly define TOR that detail primary duties of board and management are in the process of being defined. The board has held at least three meetings after its inauguration.	A committed board is in place with some relevant experience. Meetings are held periodically, and there is a consistent level of involvement in the supply chain. While the Board of Directors may have relevant experience, the company lacks the financial strength to provide a large client with required resources.	There is a strong and diverse board comprising members with relevant experience. Regular and well documented meetings are held, and action points are followed up promptly. There is consistent oversight of supply chain according to the board's TOR.	
1.8	How old is the organization?						

1.9	What was the annual turnover for 2020?						
1.10	How many years of experience in the Philippines?						
1.11	How stable is the company?	The company has recently formed. Directors have very limited experience running a logistics/supply chain organization.	Recently formed company that has limited operational coverage in terms of both the service offering and geographical reach.	A company that has many years of trading profitably but lacks the vision and financial strength to grow. In many cases, the service offering relies on several operational partners. While this could form the basis of a 3PL/LLP relationship, managing the partners in a growth scenario might be problematic.	A sizeable company in terms of the offerings it provides and the geographic areas it serves. The Board of Directors has significant operational and commercial experience. Growth has, in many cases, been the result of acquiring other long-standing successful companies (e.g., Imperial Logistics, founded in 1975 with an annual turnover of USD 3 billion).	A sizeable company that is part of a large international group that has been in existence for more than 10 years with extremely large turnover. (e.g., Deutsche Post DHL €70 billion; Kuehne & Nagel 25 billion CHF; XPO Logistics USD 17 billion USD).	
2. Financial Reporting							
The anticipated responses do not fit the maturity model methodology. These questions could be used as prompts/subsequent questions while discussing Question 1. Company Age and Stability.							
	Capability Element/Scores	0	1	2	3	4	
2.1	Is the organization part of a group of companies?						
2.2	Are separate annual accounts prepared and submitted to the authorities (e.g., stakeholders, annual general meetings [AGM], Federal Inland Revenue Services [FIRS])?						Yes
2.3	If YES to 2.1, please provide a copy of the annual reports for the last two years (e.g., AGM reports).						

2.4	If NO to 2.1, is the financial performance of the company consolidated into the group's annual report?						Yes
2.5	What is the average turnover of the company over the past two years?						
2.6	How many transactions has the organization had with government at any level in the past five years?						Yes
2.7	If ANY NUMBER GREATER THAN ONE for 2.6, please state clearly which Ministries, Departments, and Agencies (MDAs); which level of government; and the duration of engagement (e.g., federal, state, local government area, health facility).						
3. Governance/Organizational Structure/Board of Directors							
	Capability Element/Scores	0	1	2	3	4	
3.1	Please provide an organogram detailing the title of each director of the company.						
3.2	For each director, please indicate the number of years of logistics experience.						

3.3	How is the Board of Directors structured and what is their level of experience?	New company with a young Board of Directors. Although the directors may have some limited operational experience, their credentials are mainly educational qualifications.	The Board of Directors is structured in a traditional manner, with procurement reporting to the Finance Director.	The Board of Directors is a blend of young and experienced executives. Each of the main elements of the supply chain is allocated a director. While this high-level representation reflects the importance of SCM within the organization, it does mean that all key decision making needs the involvement of the CEO.	The Board of Directors is a blend of young and experienced executives. The number of directors managing the supply chain are narrowed into broad categories (e.g., Director Technical and Director of Operations). For example, forecasting and procurement activities, if they are offered as a service, are managed by one director, and the operational aspects of the supply chain and logistics are managed by another. While there are fewer directors involved than in the level two scenario, all major decisions require the involvement of the CEO.	A mature company where all members of the Board of Directors are experienced executives. All of the functions of the supply chain represented at the board level by one senior executive. Their responsibilities embrace a wide span of control from forecasting to last mile delivery gained from many years of executive experience. Once a strategy has been agreed to by the Board of Directors, the Operations Director is responsible for implementing the strategy effectively.	
3.4	What is the organizational structure of the organization? What is the succession plan of the organization?	No available documents showing the current lines of authority and communication. No organization chart.	Organizational chart that defines lines of authority and communication is in the process of being developed.	An approved organizational chart showing lines of authority and communication is included in the organization's manual of policies and procedures, but it is not clearly followed (e.g., in many instances, order processing and inventory management report to an administrative function and thus, warehouse management can be split between operations and administrative managers). Coordinating inbound and outbound movements of goods under these circumstances is difficult.	An approved organizational chart that defines lines of authority and communication is included in the organization's manual of policies and procedures and is mostly followed. The approved organizational chart is used to clarify lines of authority and accountability and to evaluate performance.	An approved organizational chart defines lines of authority and accountability, is included in the organization's manual of policies and procedures, and is followed.	

4. Human Resources							
	Capability Element/Scores	0	1	2	3	4	
4.1	How many people are employed by the company?						
4.2	Within the overall total, how many people are employed in: i. Managerial and office activities (including contract management) ii. Warehouse operations iii. Transport (both primary and secondary movements)?						
4.3	What is the composition of the workforce (e.g., part-time/full-time employees)? How often does training of employees occur? Is mechanical handling equipment available? PPE? What percentage of staff turnover each year?	Unplanned operations and lack of adequate mechanical material equipment results in high levels of casual labor hiring, part-time workers, and overtime payments. The lack of a stable work force tends to result in high levels of staff turnover (greater than 15% per year).	Modest amounts of mechanical handling equipment are available, and some operations are planned to reduce the physical stress of the operational activities. However, most operations are unscheduled. Staff are provided with basic PPE, and staff attrition is about 15%.	An adequate amount of mechanical handling equipment is available, and all operations are planned to reduce the physical stress of many of the operational activities. Staff are provided with PPE required for their level of operation. SOPs have been developed, and staff have been trained in their use. Visual aids and signage, where appropriate, are posted throughout the organization's facilities to reinforce the training. Staff attrition is between 10% and 14%.	Staff are provided with PPE required for their level of operation. SOPs have been developed, and staff have been trained in their use. There is a satisfied work force with low levels of staff turnover. Staff forums have been introduced to enable two-way communication between management and staff. Payment schemes have been introduced based on both corporate and individual goals. Staff attrition is less than 10%.	A highly trained and motivated work force is committed to the organization's goals and ideals. Individual personal development plans are developed, and time is made available for individuals to undertake the training. A succession plan has been developed to mitigate the risk associated with the loss of key individuals. The staff attrition rate is less than 5% per year.	

4.4	What, if any, job descriptions are written and available? How are the job descriptions utilized? How specialized are staff? What, if any, efforts are made to ensure equal opportunities for all?	Job descriptions with appropriate qualifications across organizational units and among staff at different levels do not exist.	Job descriptions with appropriate qualifications across organizational units and among staff at different levels are being developed.	Clear job descriptions with appropriate qualifications across organizational units and among staff at different levels are in place but used with irregular frequency. Organization has some specialized staff.	Clear job descriptions with appropriate qualifications exist for all position but are used inconsistently and are not used to manage performance expectations of staff. There are some efforts to ensure that women and vulnerable groups have equal recruitment opportunities. Organization has staff that represent a fairly wide range of knowledge and expertise (e.g., finance, admin, supply chain).	Clear job descriptions with appropriate qualifications exist for all positions, are used consistently to manage performance expectations of staff, and are reviewed regularly. Efforts have been made to ensure that women and vulnerable groups have equal recruitment opportunities and are represented at all levels within the organization. Organization has staff that represent the full range of knowledge and expertise (e.g., finance, admin, M&E, supply chain logistic expert).	
4.5	What is the mechanism for staff communication?	Communication mechanisms for sharing information across organizational units and among staff at different levels do not exist.	Communication mechanisms for sharing information across organizational units and among staff at different levels are being developed.	Communication mechanisms for sharing information across organizational units and among staff at different levels are in place but infrequently used.	Communication mechanisms for sharing information across organizational units and among staff at different levels have been developed and are in place but ineffective.	Communication mechanisms for sharing information across organizational units and among staff at different levels are used consistently and are effective.	
4.6	What, if any, human resource policies and procedures exist? How are the policies and procedures utilized?	Comprehensive policies and procedures are absent.	Comprehensive policies and procedures are in the process of development.	Comprehensive policies and procedures exist and are sometimes used during recruitment. Staff-related policies and procedures are given to key staff.	Comprehensive policies and procedures exist and are used during staff recruitment. All staff-related policies and procedures are given to all staff.		
4.7	How are staff evaluated against accountability metrics? What, if any, is the mechanism for performance evaluation?	Staff have not been allocated areas of accountability with deliverables and there is no system for reviewing staff performance.	Staff are occasionally informally evaluated against broad areas of accountability.	There is a formal staff performance evaluation system that is sometimes followed. Performance evaluations are conducted against areas of accountability and deliverables but not consistently for all staff at all levels.	There is a formal staff performance evaluation system that is usually followed. Staff are formally evaluated against KPIs, and a written record is placed in their staff file. Staff performance evaluations have been conducted within the last two years.	There is a formal staff performance evaluation system that is always followed. All staff are formally evaluated annually against KPIs, and reference is made to the previous year's performance evaluation. Staff development plans are formulated based on performance evaluations, and the performance evaluation may be linked to salary increments/bonuses.	

5. Services Offered							
	Capability Element/Scores	0	1	2	3	4	
5.1	Please list the logistics services offered by the company, for example: i. Forecasting product needs ii. Procuring finished items and/or components for manufacturing purposes iii. Procuring additional logistics assets and acting as the main in sub-contracted relationships iv. Arranging inbound transport from local and international suppliers v. Customs clearance vi. Warehousing in bulk, including inventory management vii. Order processing and picking viii. Distribution planning. including primary transport to depots/regional warehouses ix. Multidrop distribution of picked orders (last mile delivery) x. Waste disposal						

5.2	What services are offered by the organization?	An offering of a single element of the end-to-end supply chain (e.g., customs clearance).	Very limited range of services offered, on a small scale, relating to one or two elements of the end-to-end supply chain (e.g., bulk warehousing and primary distribution).	A wide range of physical distribution services on a regional basis within the country (e.g., receipt and storage of imported products, detailed order picking, and last mile distribution within geographic operational area).	An offering embracing the end-to-end supply chain, to some extent, nationally. The procurement function could relate to procuring additional distribution resources as needed and products based on call-off contracts and inventory management techniques.	The company offers in-depth services in all the elements of the supply chain, both nationally and internationally. The procurement processes include tendering and contract management. The IT systems in place support vendor-managed inventory should the client wish to implement the strategy.	
5.3	Is there willingness to expand services outside of current geographic areas?	Organization has no interest in expanding to other regions.	Organization is open to discussion regarding expansion to a limited number of new regions near current service delivery sites.	Organization is open to discussion regarding expansion to a limited number of new regions near current service delivery sites and has capacity and resources to drive expansion.	Organization has willingness to expand to new regions that pose minimal barriers to entry.	Organization has willingness to expand to any regions requested by MOH/DOH, including regions that pose significant difficulty due to geographic, political, or other constraints.	
5.4	Is there capacity to expand services outside of current geographic areas?	Organization has no capacity to expand to other regions.	There is limited capacity and resources to drive expansion.	Organization is open to discussion regarding expansion to a limited number of new regions near current service delivery sites and has capacity and resources to drive expansion.	Organization has capacity to expand to new regions that pose minimal barriers to entry.	Organization has capacity to expand to any regions requested by MOH/DOH, including regions that pose significant difficulty due to geographic, political, or other constraints.	
6. Client Management							
	Capability Element/Scores	0	1	2	3	4	
6.1	Please list the names of your major clients (industry sector names are acceptable to maintain commercial confidentiality).						

6.2	How is the relationship with each major client managed? Potential responses include: i. A single named client relationship manager ii. Regular performance reports (KPIs) iii. Face-to-face planning reporting and planning meetings on a regular basis iv. Agreed SLAs that are reviewed as market conditions change v. A two-way relationship in which the obligations of the company and the client are documented						
6.3	How are client relationships managed?	The relationship is essentially transactional (rate tariff driven), and the company responds to requests for resources from the client base on an ad hoc basis.	Individual elements of the organization maintain contact with members of the client team. Typically, this is done in an uncoordinated manner resulting in poor quality communications.	Within the organization a member of the business development team has the responsibility for managing the relationship with the client. Often, the contact is the result of the need to resolve an operational issue and does not facilitate the development of an excellent relationship between the organizations. Standard performance measures are produced and circulated.	A number of specific nominated contacts identified in both the client and logistics service provider for day-to-day operational communication. SLAs have been formally agreed and documented. An escalation process is in place should day-to-day contacts fail to resolve issues.	An overall client relationship executive is nominated to conduct regular performance reviews, typically monthly, and annual planning/budgeting processes. IT systems generate and/or enable the client to produce tailored reports from the organization's operational data.	

6.4	Please describe the quality improvement system, if one exists.	No quality improvement program exists.	There is a quality improvement program and trained staff, but the system is not in use.	There is an established, ongoing system for assessing and improving the quality of services. Adequately trained staff are available but not fully engaging in this system.	There is an established, ongoing system for assessing and improving the quality of services. Adequately trained staff are available and use the system regularly. Quality improvement is regularly reported.	There is an established, ongoing system for assessing and improving the quality of services. Adequately trained staff are available and use the system regularly. Quality improvement is regularly reported and is a stated core function of the chief executive.	
6.5	Is there an M&E plan in place?						
6.6	What, if any, software is used for M&E data collection? How often are M&E data collected? How is that information utilized?	No routine collection of M&E data.	No appropriate software for M&E data collection. Data are collected when it is convenient and are not used or analyzed.	Software for M&E data and report collection is available. Data and reports are collected routinely but are not analyzed regularly.	Software for M&E data and report collection is available. Data and reports are collected periodically, analyzed, and discussed, but are not used to support decision making or performance improvement.	Software for M&E data and report collection is available. Data and reports are collected regularly, analyzed, discussed, and used for to guide decision making and performance improvement.	
6.7	Do written quality standards for service delivery exist? Are community/beneficiary needs considered? Is there adherence to national standards? Are beneficiaries satisfied with service delivery?	Quality standards for service delivery do not exist. Organization's service delivery is not monitored.	Quality standards for service delivery exist only informally OR are outdated OR were developed only at donor behest and are not monitored. Organization often falls short, and beneficiaries are dissatisfied with service delivery.	Written quality standards exist for some aspects of service delivery but not all. They are not entirely clear and are not monitored regularly. Organization is believed to be making a positive difference but is unable to demonstrate concrete results. Beneficiaries are somewhat satisfied with service delivery.	Written quality standards exist for most aspects of service delivery. These take community/beneficiary needs into account and are mostly in line with national standards. Organization is monitored against quality standards. Beneficiaries are satisfied with service delivery.	Written quality standards exist for all aspects of service delivery that take community/beneficiary needs into account and fully adhere to national standards. Organization is monitored regularly against quality standards. Beneficiaries are consistently satisfied with service delivery.	
6.8	Are best practices documented? If so, how are they utilized?	No records are kept of best practices.	Records of best practices are documented but not compiled into reports or disseminated.	Best practices are documented and reported but not shared.	Best practices are documented, reported, and shared only within the unit.	Best practices are documented, reported, and shared with a wide range of stakeholders.	

7. Storage and Transport Capability							
	Capability Element/Scores	0	1	2	3	4	
7.1	Do you use mechanical handling equipment?						
7.2	What storage methods and mechanical handling methods are deployed?						
7.3	Are the facilities owned or rented/leased by the company?						
7.4	If rented/leased, what is the length of the current renting/leasing arrangement?						
7.5	How many facilities are owned/rented/leased by the company? Where are they located?						
7.6	What is the capacity of each facility (pallet size or volume)?						
7.7	What is the percentage utility of each facility?						
7.7	Please describe the storage and warehousing facilities.	Basic warehouse facilities: Sound buildings with minimal security features. Limited storage methods and mechanical handling equipment (MHE) assistance. Ambient storage facilities only.	Secure and sound facilities. Different operational areas clearly delineated. Some racking and shelving to suit the product characteristics and demand volumes. Appropriate MHE available.	A range of warehouse/storage types in terms of temperature regimes, storage methods, and MHE are available. All staff are trained appropriately for their areas of operation.	A wide range of storage techniques are available to suit product types and demand profiles. There is clear segregation of hazardous products and items requiring additional security. Back up/stand-by equipment is on site to support the main electricity supply.	Sophisticated storage systems and MHE equipment installed, such as narrow aisle racking, storage carousels, and conveyor systems. CCTV security is installed and monitored on a regular basis. Planned acquisition of additional space to suit clients' needs.	
7.8	What fraction of the transportation fleet is outsourced?						

7.9	How many trucks are operated by the company (please provide an analysis of the total number of trucks, by size, if possible)?	The company operates open trucks in a range of sizes. A replacement policy, on the basis of age/kms run, has not been developed and implemented.	The company operates several types and sizes of truck to suit the needs of the clients' products. The company does not operate refrigerated trucks.	The company operates trucks in a range of types, sizes, and temperature regimes. A replacement policy has been implemented and all vehicles are maintained as advised by the vehicle manufacturers.	A range of transport management techniques are in use to maximize the efficiency of the vehicle fleet, including fuel consumption monitoring, safe driving rewards, driver debriefs, and vehicle defect reporting processes. Vehicles are procured to suit the needs of the goods being carried, and drivers receive appropriate training regarding any equipment unique to particular vehicles (i.e., load restraining equipment, tail-lifts, refrigeration systems).	Vehicles are monitored by GPS. Alerts regarding engine condition and refrigeration equipment performance are incorporated into the vehicles' communication system. Vehicles are made available at short notice to meet the requirements of new customers. Vehicle trials are undertaken prior to placing purchase orders for new vehicles.	

8. Information Systems							
	Capability Element/Scores	0	1	2	3	4	
8.1	What type of information systems are utilized by the company?	The information systems within the company, with the exception of the financial information, are manual.	In-house developed spreadsheet-based systems are used for decision making regarding procurement and stock replenishment within the network nodes and vehicle planning. The individual systems are typically standalone and require considerable manual support. Considerable manual intervention is required to produce the financial reports.	A range of software systems have been implemented for the main elements of the supply chain: forecasting, procurement, warehouse management (WMS), vehicle scheduling, and performance measurement.	A range of software systems have been implemented for the main elements of the supply chain: forecasting, procurement, WMS, vehicle scheduling, and performance measurement. The various software packages are integrated with the organization's financial/enterprise resource planning systems. with an output of robust visual analytics. The organization's information systems are integrated with those of the customer base. The systems have the functionality to calculate both the weight and volume of individual orders.	Control tower technology is in place to enable total visibility of the end-to-end supply chain. The best-in-class software is fully integrated, minimizing the need for manual intervention. Both standard and customized visualized reports can be produced by the integrated systems. Procurement alerts can be generated as a result of the WMS inventory management functionality.	

9. Quality Systems							
	Capability Element/Scores	0	1	2	3	4	
9.1	What level of ISO accreditation has the organization achieved/is in the process of achieving (e.g., ISO 9000/9004)?	Formal quality systems have not been introduced. Management responds to individual customer complaints as and when they occur, typically defensively.	Staff training is undertaken by supervisors and performance is reviewed on a regular basis. Operational demand fluctuations tend to result in the use of part-time and casual labor, making the achievement of a consistent level of performance challenging.	SOPs are in place for all operational activities. Initial training is supplemented as needed by supervision. The philosophy is more quality control (QC) than quality assurance (QA) (i.e., introducing additional checking of picked orders due to an increase in picking errors being detected).	Operating manuals have been developed to support the SOPs. Regular staff performance reviews are aimed at improving the quality of the offering rather than seeking to blame staff for errors. A formal customer complaints handling process has been introduced, including regular feedback to customers. ISO accreditation is an objective, and initial steps have been taken to achieve the objective.	ISO accreditation has been achieved and ongoing compliance is audited. Customer surveys and focus groups inform management decision making regarding the quality standards needed. Staff involvement at all levels is an integral part of maintaining, and improving the overall quality of the service offering.	
9.2	Do the processes introduced by the company meet WHO standards in the area of GWP and GDP for pharmaceuticals?						

10. Logistics Processes							
	Capability Element/Scores	0	1	2	3	4	
10.1	What types of costing/pricing processes are used with clients to ensure value for money and a sustainable operation?						
10.2	What processes are in place to ensure that clients receive the level of service that they require as detailed in the SLAs?						
10.3	Are SLAs used with each contract? How are operational parameters established? How is costing decided (e.g., actual cost + percentage management fee, established jointly) How often, if ever, do reviews occur?	The management team does not have a formalized process embracing the end-to-end supply chain. Each subteam reacts to the needs of its own objectives individually. This can lead to conflicting actions among team members (e.g., the procurement team buys in bulk to obtain a lower buying price, causing the warehouse team to rent additional warehouse space).	Contracts of a confrontational rather than collaborative nature, reflecting penalties rather than mutual benefits. The service provided will tend to be charged at actual costs plus a percentage management fee based on the actual costs. This situation does not give the service provider any incentive to reduce costs and maintains the operational status quo.	Agreed SLAs are in place. Operational parameters and resource levels are established to jointly develop an operating budget. Any deviations from those operational parameters are agreed to prior to implementing the changes (e.g., a change in the procurement intake volume per day).	KPIs reflecting the SLAs will be reported regularly, typically monthly. Operational reports, in an agreed format, will be circulated at an agreed time each day. Monthly formal reviews will take place to discuss potential changes to plans (e.g., the acceleration of the introduction of a new product). Further logistics processes will include inventory monitoring to ensure inventory accuracy and minimize the level of stock wastage. Payment and costing methods are developed to incentivize the service provider to make improvements in costs and/or service levels.	Client reviews to consider future plans and different costing/pricing methods to reflect the client's objectives at agreed points within the overall contract timeframe. With longer contracts becoming the norm, the review process is extremely important, particularly in the event that the 3PL/4PL provider has invested in infrastructure to deliver the service.	