Conversion Factory

LOGISTIC BUILDING BLOCKS FOR EFFECTIVE 4PL LOGISTICS CONTROL

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Introduction

This report describes set of building blocks and a performance measurement system, that have been developed to enable a 4PL logistics service provider to construct a large variety of complex logistics service offerings, and to monitor and supervise the delivery of these services, thereby using the services contracted from and delivered by 3PL logistics service providers. The report is based on a solution that has been developed for OneLogistics, a start-up 4PL company with a focus on capital goods and pharmaceutical products.

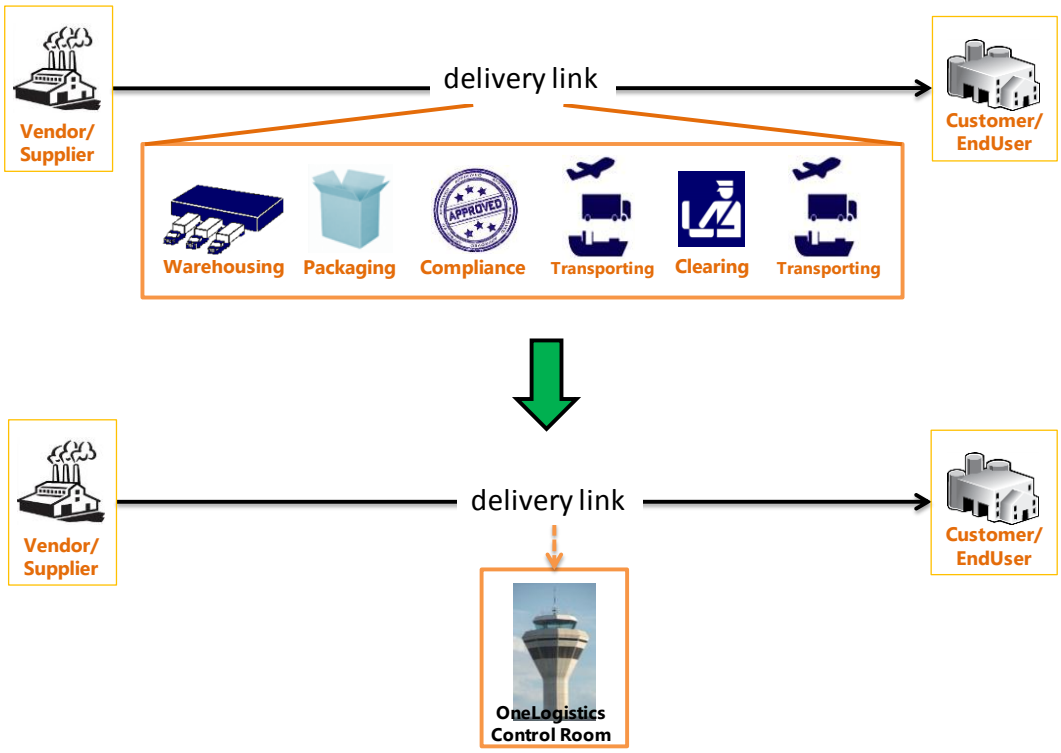

Figure 1 OneLogistics - Single Global Logistics Provider/Logistics Control Room monitoring the performance of the supply chain (including subcontracting)

Scope

The building blocks can be used as reference for 4PL companies that want to monitor the performance of the current logistics services offered and for constructing service contracts. They also show the potential logistics services to be incorporated, which can be performed by different 3LP's, so that the service can be better managed.

The building block approach assumes that the 4PL company has installed an ICT system in which the building blocks can be stored as standardized processing steps, with standardized hand shakes with preceding and succeeding building blocks as well as standardized performance measures. The services provided by 3PL logistics service companies can then be checked or adapted to fit with the characteristics of a specific building block. Different 3PL logistics service providers who can comply

with the characteristics of a building block, are candidate for performing that building block in a service contract constructed by the 4PL company. The execution of a building block by a 3PL company is monitored in terms of quality of the hand shakes and the performance delivered, based on the performance indicators. The 3PL companies can be regularly evaluated with respect to their realized performance at the building block level, enabling the 4PL company to set performance benchmarks and stimulate performance improvement. Finally, the 4PL company can optimize overall performance by balancing the performances at the building block level against total costs and quality of service delivered to the end-customer.

Description of the building blocks

Five building blocks have been identified in the processes of international distribution of capital goods. These are: packaging, warehousing, compliance with trade regulations, transportation, and customs & duties (see Figure 2).

		OneLogistics Building blocks					
Boundaries	**Supplier**	**Compliance**	**Packaging**	**Warehousing**	**Transportation**	**Customs Clearance**	**Customer End User**
From	Receivinig the order	Denied trade screening	Packaging design	Receiving the picking ticket	Carrier selection	Definition customs procedure	Order is confirmed
Until	Confirmation to the customer	Release compliance procedure	SKU are packed	Dispatch for the carrier	Order is confirmed	Goods are released	Order is closed

Figure 2 Logistics building blocks boundaries

Packaging, warehousing and transportation are physical processes that require materials resources and information for their execution. Compliance with trade regulations, and customs & duties are building blocks that imply interaction with governmental agencies, which may affect the overall service or require the overall service to be changed. These building blocks are overarching to the other three, and run ahead to these in order to make sure that intended routes and destinations are possible and allowed, and that country borders on the routes can be crossed smoothly.

The building block Packaging is special in the sense that physical nature of the packed good, and the information on and accompanying the packed goods, is instrumental for easy, reliable, safe, sustainable and cheap transportation and storage of the goods. For that reason, tight control over the quality of this building block is a prerequisite for an excellent performance at the 4PL level.

The 4PL company monitors and supervises the execution of the service delivery. If no problems occur in the execution by the 3PL companies related to the building blocks, no action needs to be taken by the 4PL. However, if problems occur, action is needed and the 4PL should be prepared for it.

For each of the building blocks, a number of potential problems in the execution of the building block has been identified, with for each problem, the other building blocks that may be affected by this problem.

Table 1 below gives examples of the various objectives to be achieved per building block, the potential problems that can occur in realizing these objectives, and the other building blocks that may be affected by this problem. For a complete table please contact OneLogistics.

Table 1 An example of a disturbance per building block

Building block	Influence over	Critical operation	Potential problems
Compliance	TR/WH/CC	Screening of good against country regulations	Screening is done based on outdated information regarding regulation
Packaging		Follow packaging instructions	Complicated instructions leading to mistakes and delays
Warehousing		Picking SKUs	Picking incorrect SKUs
Transportation		Processing	Entry mistakes. Outdated or incorrect shipping information
Customs clearance	TR	Define customs procedure	Incorrect definition of customs procedures

CC= Clearing customs TR = Transportation WH = Warehousing

Table 2 gives for each of the potential problems, the performance measure that that is affected by the occurrence of this problem.

Table 2 Measures associated to potential disturbances (for the examples in Table 1)

Building block	Critical operation	Potential problems	Measure
Compliance	Screening of good against country regulations	Screening is done based on outdated information regarding regulation	Review rate
Packaging	Follow packaging instructions	Complicated instructions leading to mistakes and delays	Orders delivered with proper packaging
Warehousing	Picking SKUs	Picking incorrect SKUs	WH picking accuracy
Transportation	Processing	Entry mistakes. Outdated or incorrect shipping information	Shipments arriving to the right location
Customs clearance	Define customs procedure	Incorrect definition of customs procedures	CC On time and CC Delay

CC= Clearing customs TR = Transportation WH = Warehousing

Table 3 below gives an overview of the Key Performance Indicators per building block at the operational level, and their connection to the performance measurements at the tactical and strategic level that underlies the relationship between the 4PL and the 3PL's taking care of the execution.

Table 3 Reference Set of performance indicators (for the complete set please contact OneLogistics)

Measures							KPI	
	Operational						Tactical	Strategic
	Vendor/ Supplier	Warehousing	Packaging	Compliance Insp	Transporting	Clearing Customs	Transporting	Buyer/ Customer	
Order Processing					A.1		A.1	**Delivery Location Accuracy**	
Process	B.1 B.2			B.3 B.4 B.5	B.6 B.7 B.8 B.9 B.10 B.11	B.12 B.13	B.6 B.7 B.8 B.9 B.10 B.11	**On Time** **Average Delay**	**On time**
Documentation				C.1	C.2	C.3 C.4	C.2	**Documentation Accuracy**	
Qty/Quality	D.1 D.2 D.3 D.4 D.5		D.6 D.7		D.8 D.9 D.10 D.11		D.8 D.9 D.10 D.11	**Order completeness**	**Order Compliance**
Sustainability	E.1			E.2	E.3 E.4 E.5	E.6	E.3 E.4 E.5	**Total Logistics Cost** **TR CO2 emissions**	

A Order Processing	B Process	C Documentation	E Sustainability
A.1 Shipments arriving to the correct location	B.1 On Time Dispatching	C.1 Compliance Documentation Accuracy	E.1 Total storage cost
	B.2 Avg Dispatching Delay	C.2 TR Documentation Accuracy	E.2 Economic penalizations

Performance measurement dashboard
Based on the above analysis of potential problems and interactions, a dashboard for measuring the operational performance at the building block level, the tactical level, and the strategic level has been designed. A demonstration of the dashboard is available in Excel.

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