Supply Chain Control Towers
Case: DSM Engineering Plastics & IDS
Amsterdam
June 22 2017
Agenda

1. Introduction
2. DSM Engineering Plastics
3. IDS
4. Why a Transport Control Tower?
5. Control Towers and Smart Transport Management
Jan-Pedro P.M. Vis

February 2006 - June 2008
Management Trainee

June 2008 - October 2010
Transport manager

October 2010 - July 2013
Manager Customer Service & Sales Operations

July 2013 - June 2015
Program Manager Marketing Sales

June 2015 - Feb 2017
Manager Purchasing Europe

March 2017 - Today
Global Procurement Director
Growth driven by global megatrends

Health & Wellness
- Aging population
- Healthcare issues
- Food composition

Global Shifts
- Population growth
- Urbanization drive
- Wealth increase

Climate & Energy
- Sustainability concerns
- Resources constraints
- Energy concerns

Health
Nutrition
Materials
DSM at a glance*

People

20,750

Workforce
(at year-end 2015)

Profit

€ 7,722

Net sales, continuing operations (x million)

€ 1,075

EBITDA, continuing operations (x million)

Planet

24

Innovation sales as % of total sales

* 2015 numbers total DSM
# Key financial figures 2015

**Engineering Plastics**

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<thead>
<tr>
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<th>2015</th>
<th>2014</th>
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<tr>
<td><strong>Net Sales (€ million):</strong></td>
<td>1,378</td>
<td>1,324</td>
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<tr>
<td><strong># of employees:</strong></td>
<td>1,963</td>
<td>1,826</td>
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Creating shared value in our end markets

**Automotive**
- Reduction fuel consumption
- Solutions to lower footprint
- Safety & comfort

**Electrical & Electronics**
- Speed of innovation
- Miniaturization
- Elimination of substances of hazardous concern

**Packaging**
- Reduction of food waste
- Recycling and bio-based solutions
- Safety & convenience

**Consumer goods**
- Improved functionality
- Safety, health and comfort

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Creating shared value in our end markets
Leadership in core product lines

Amorphous

Semi-crystalline

PE  PP
PS  PVC
ABS  PMMA
PEI
PEEK
LCP
PPA
PA46
PA410
PA4T
PPS
TPC
PET
PBT
POM
PA6  PA66  P6/66

ForTii®
Stanyl®
EcoPaXX™
Arnitel®
Arnite®
Akulon® Novamid™

Price - Performance

Volume
Understanding the value chain
The applications

AUTOMOTIVE

ELECTRONICS

CLOTHING

PAKCAGING
Our locations worldwide

- DSM production locations
- DSM R&D locations
- DSM offices
The Product
Non ADR granulate
Packaging types

- Bag in Sample Box ~ 25 kg
- Bags on Pallets ~ 1300 kg
- Octabin on Pallets ~ 1300 kg
- Dry Bulk ~ 25 tons
Why outsource transport management?

1. DSM Engineering Plastics is not a Logistics company, but a Material Sciences company.

2. We need best in class partner with professional tools to optimize and control the quality and cost of our transport.

Transport process DEP

- DSM
- IDS
- 25 Carriers
- 1100+ Consignees

Control
Optimization
Flexibility in transport
Outsourced tasks
IDS: Supply Chain Executors
IDS Supply Chain Executors

Non-asset based 4PL / logistics control tower, founded 1988
Managing, executing & optimizing (larger) shipper’s transportation operations & contracts, from a carrier neutral perspective.

1. Transport Management Platform
   - SaaS - Secure web based environment
   - State-of-art TMS, full functionality
   - **PLUS:** Optimization tools

2. Highly educated supply chain professionals
   - Daily Logistics Execution
   - Managing carrier base
   - **PLUS:** improvement target

Independent transport management partner (transaction fee)
What is Control Tower?

A supply chain Control Tower is a central hub with the required technology, organization, and processes to capture and use supply chain data to provide enhanced visibility for short and long term decision making that is aligned with strategic objectives.

Capgemini Consulting
The Neutral 4PL

IDS managed Transportation Services

- **Transport Management**
  - Visibility of the Supply Chain
  - World class TMS functionality

- **IT Integration**
  - Integrated IT platform over the services
  - **Single point of entry** for full service portfolio
  - Flexible connectivity towards carriers

- **Leverage of expertise**
  - Best practice sharing
  - Global pool of expertise
  - High skilled personnel

- **Operational Excellence**
  - Culture of **Operational Excellence** and Compliance
  - Proven track record of **Cost Optimization**

Customer → IDS → LSP → LSP → LSP → LSP → Contract → Management
Control Towers and Smart Transport Management
Cost Structure International Transport

60% of the cost price is labor and fuel

East European carriers are more cost effective but wages are increasing and how long will this bring a cost advantage?

Total transport cost East European countries (NL=100)

- BG
- CZ
- HU
- PL
- RO
- SI
- SK
- TR
Transport Capacity
Share of empty journeys in the total journeys by type of operation, 2014

(%) of vkm

Total transport  National transport  Total international transport

(*) No empty vkm reported by Belgium, Italy, Malta and Romania.
Source: Eurostat (online data code: road_go_ta_tott)
Levers of Smart Transport Management

- **Shipment Consolidation**: Combine shipments to optimize load utilization. *Reduce transport*
- **Mode Shift**: Select the cost optimal transport mode and carrier. *Cheaper transport mode*
- **Customer Collaboration**: Maximize options by understanding customer requirements. *Enable the other levers*

The core of the Control Tower Concept.
Smart Transport Management Solutions
Shipment Consolidation
Financial Consolidation

Merge multiple orders administrative into one shipment
(orders need to have the same pick up and delivery address and need to move at the same time)

Separate shipping

Shipments:
- Shipment A: 5 pallets, €190,-
- Shipment B: 5 pallets, €190,-

Consolidation:
- Shipment A + B: 10 pallets, €310,-
Geo Consolidation optimizes shipment consolidation by considering all shipments that have delivery addresses close to each other.
5 C consolidation optimizes shipment consolidation by considering shipments from different shippers and that have loading and delivery addresses close to each other.
Mode Shift
Transport Optimizer by destination and modality based on costs

Shipment to Italy

Lead time to Italy

Additional savings due to optimization
Customer Collaboration

Delivery windows

A Delivery Window to set a delivery window per receiver that may span several days before and several days after the planned delivery date.
The Future Challenges

1. 30% unutilized transport capacity
2. Increasing pressure on Labor Market
3. Steep increase of heavy traffic projected for 2021 in the Netherlands
4. Importance of sustainability will increase, Paris Accord

Verkeer in steden dreigt vast te lopen

Door: Alwin Kuiken – 28/12/16, 06:45

2021 Steden slikken dicht. De komende vijf jaar verdubbelt de chaos. Te lang lag de focus op het oplossen van files op hoofdwegen.
Smart ideas for the future...

Simulation 5C+ Central Shipper Inbound Outbound UBER for Cargo ?
Inbound-Outbound Project
Minimize the empty kilometers driven

Challenges:
• Hauliers are reluctant to work on “spot-market” basis (Irrational behavior)
• Raw material suppliers use hauliers that deliver inbound flows as the return trips;
• Low interest due to potentially short distances for outbound flows and reasonably long dwelling time

The Weight of Cargo
20,001-25,000kg

Adjusted R Square
0.93

Fixed Component (p-values<0.01)
206.05

Variable Component per Extra KM (p-values<0.01)
0.93

\[ C = \beta_0 + \beta_1 X_1 + \beta_0 + \beta_1 X_1 = 2 \beta_0 + 2 \beta_1 X_1 \]

\[ C = \beta_0 + 2 \beta_1 X_1; \quad \text{Savings} = \gamma \beta_0 \]

(Part of the fixed component)
Challenge DSM - IDS
Organizations that enable success

**DSM**

Outsourced business still requires business commitment to drive continues improvement

**IDS**

Leverage the strengths of Descartes without losing the flexibility, agility and speed