## Innovative Logistics in Floriculture

**Prof. dr. ir. Jack van der Vorst**  
Wageningen Universiteit  
Dutch Design Week, ABN AMRO House, Eindhoven  
21 oktober 2014

### Today’s bouquet

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<th>Developments and needs</th>
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Characteristics of the supply chain network

- Many independent SMEs (and a large cooperative) with own objectives
- High dynamics and uncertainty in supply and demand
- Product quality changes during distribution – guaranteed vase life!
- Demand driven retail chains, supply driven detail chains
- Last-minute changes and rush-orders
- Dedicated tailored logistics concepts to differentiated market segments

Major developments

<table>
<thead>
<tr>
<th>Country</th>
<th>Growth 2011</th>
<th>Region</th>
<th>Growth 2012</th>
</tr>
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<tbody>
<tr>
<td>Kenia</td>
<td>+17%</td>
<td>Core region</td>
<td>+5%</td>
</tr>
<tr>
<td>Ethiopië</td>
<td></td>
<td></td>
<td>+10%</td>
</tr>
<tr>
<td>Ecuador</td>
<td></td>
<td></td>
<td>-5%</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td>+5%</td>
</tr>
<tr>
<td>Country</td>
<td></td>
<td></td>
<td>+34%</td>
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Since 2008:
- Average 2012: 14%
- Average 15% small
Challenge for the future

Eastern European markets, virtualization
Direct flows skipping Dutch network

Virtualization, conditioning technologies
Redesign logistics network

What collaborative actions are needed in the sector?

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Dutch Agricultural Virtualized International Network with Consolidation, Coordination, Collaboration and Information availability (2011-2015)
Objective

insights into the effects of virtualisation on the leading role of the Dutch horticulture sector in a globalised trade network

logistics

ICT

collaboration

differentiated concepts in demand-driven supply chains

transparency and an advanced information infrastructure

Hub network design and flexible quality-driven concepts

collaborative logistics

synchronomodal distribution strategies

DaVinci3i: research questions

• What responsive quality-driven logistics concepts are needed?
• What synchronomodal distribution strategies can be developed?

• What kind of hub-network is needed?
• Where should VAL activities take place?

How to earn and share in collaborative logistics?

What IT systems are needed to support such logistics networks?

Consolidation – Coordination - Collaboration

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Betrokkenheid sector

Universiteiten
Kwekers
Handelsbedrijven
Logistieke Dienstverleners

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Key scenario decisions

- Channel choice: Retail / Detail / Etail
- Personalisation: basic product or added value services
- Last mile solution: home delivery, depot, etc.

- Sourcing: regional, EU or global
- Replenishment mode: traditional or VMI
- Position Customer Order Decoupling Point (CODP)
- Direct transport or via EU hub network
- Consolidation in transport; modality: road, rail, water, air

- Containerisation with modified atmosphere
- Virtualisation logistic objects: products, quality, containers, ...
- Digital information exchange: order, transport, demand (POS), supply (planned availability), financial, etc.

12 Commerciële scenario's

- Retail ketens
- Flora provider
- Kweker evolutie
- Detail-winkels
- Flora provider
- Flora markt
- Kweker revolutie
- Detail-winkels
- Flora markt
- Kweker evolutie
- Webshop
- Fresh provider
- Kweker revolutie
- Webshop

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Logistics activities

- Selecting
- Harvesting
- Sorting
- Selling
- Bundling
- Transport
- Buffering
- Quality Control
- Verification
- Delivery to buyer/LSP
- Assembly
- Value Added Logistics
- Sales to Consumer

Some occur more than once

Potential business models

Scenario 1: Dis-intermediatie
- Telers
- Virtueel platform
- Retailketens
- Daghandel – big data!
- Consument
- Detailhandel

Scenario 2: Re-intermediatie
- Telers
- FloraProvider
- Termijn handel
- Retailketens
- Consument

Scenario 3: Voorwaartse integratie
- Telers
- Webshop coöperatie
- Levering via Bloemisten, LSP ??
- Consument
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Emergence of Orchestrated Trading Networks

Central Logistics Hub

Virtual Orchestration
DaVinci: how to link growers with consumers?

EU hub network for potted plants?

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Collaboration of traders in returnable items

Possible savings
-6%
-22%
-16%
-38%

Push/pull view of supply chain processes

Efficiency
Responsiveness

Push process
Pull process
Supplier
Manufacturer
Distributor
Retailer
Customer
Towards demand driven processes

From supply driven..... to demand driven order fulfilment

Resulting in 27% reduction of order-pick routes and increased processing capacities up to 15%.

Via internet real-time inzicht in productkwaliteit

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Mock-up quality simulation screen

- Historic quality trajectory based on measurements
- Simulated quality based on decay models
- Alarms for expected quality problems
- Advices for interventions

Co-operatieve business modellen

- … moeten in de sierteelt op ketenniveau worden gezien: het complete systeem van (al dan niet) samenwerkende partijen gaat over de creatie, levering en toe-eigening van waarde. De business modellen van individuele organisaties zijn daarvan afgeleid.

Osterwalder en Pigneur, 2010

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Essential is gain sharing in ‘unequal’ alliances

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<tr>
<td>Motives for cooperation</td>
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<tr>
<td>Principles of cooperation</td>
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<tr>
<td>Willingness to accept</td>
</tr>
<tr>
<td>Negotiation power</td>
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<tr>
<td>Contributions to the alliance</td>
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<tr>
<td>Perspective on ‘equality’</td>
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<tr>
<td>Availability of multiple types of membership</td>
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<tr>
<td>Role of third party if present</td>
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‘One size fits all’ is not the best approach to membership of an alliance: allow for different options

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Lessons learned: infrastructure

- Built common infrastructure (interconnected multi-modal hub network) for consolidation and economies of scale
- Create closed cold chain to consumer fridge
- Re-allocate VAL activities: use conditioning techniques to create inventories and buffers
- Standardize (conditioned) containers
Lessons learned: information systems

- Create integrated business information systems
  - Interoperability systems, harmonise product coding
- Use one primary network, e.g. as in telecom – e.g.
  - Built an open trading platform
- Know your customers
  - Create transparency: exchange POS, product quality info
- Manage data ownership, data reliability and security

Lessons learned: planning and control

- Establishing flexible order fulfilment processes, and predict changes in supply and demand
  - Align your planning process with partners and pool inventory
- Built a central planning and dynamic pro-active control system for collaboration, coordination & consolidation
- Virtualisation eliminates added value of intermediaries
Succesfactoren DaVinc3i

- Onderwerp dat tijdens project steeds relevanter is geworden
- Stevige collectieve, private bijdrage; niet alleen “subsidieproject”
- Bereidheid om verder te kijken dan eigen keuren en belangen
- Moeilijke ketenbrede discussie eerst gevoerd: scenario’s
- Neutrale kennispartners die academische kennis praktisch maken
  via inzet studenten in concrete cases
- Volltijds neutrale business project manager die MKB’rs actief betrekt
  en ondersteunt.
- Vele inhoudelijke bijeenkomsten met bedrijven; communicatie !!
Contact

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