

Urban consolidation centres

A viable business model and their role in electric powered city logistics

Hans Quak

Oslo September 15th

2nd Innovation in Urban Freight International Workshop

City perspective

UCC as a solution for unorganized logistics activities

UCC as a solution from city perspective

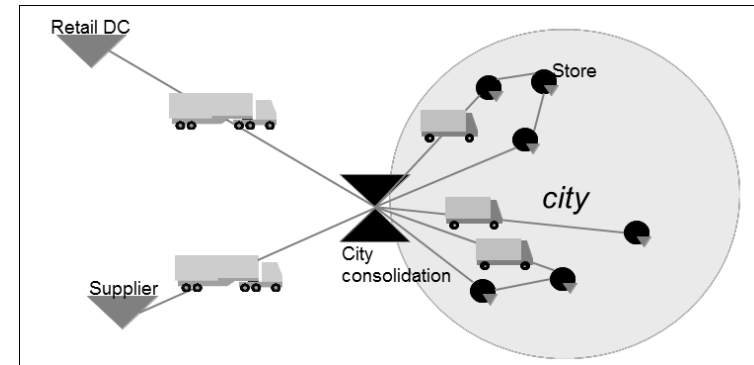
- › City logistics activities appear to be unorganized from city perspective
- › UCC as a solution to organize and optimize last mile deliveries
- › (Local) authorities see UCCs as solution for carriers because:
 - › No city access restrictions or time- windows
 - › No difficulties maneuvering trucks in narrow streets and historical centers
 - › No congestion and parking issues in cities
- › Carriers have a different perspective: solving issues is their job!
- › Many UCCs initiated from city perspective failed



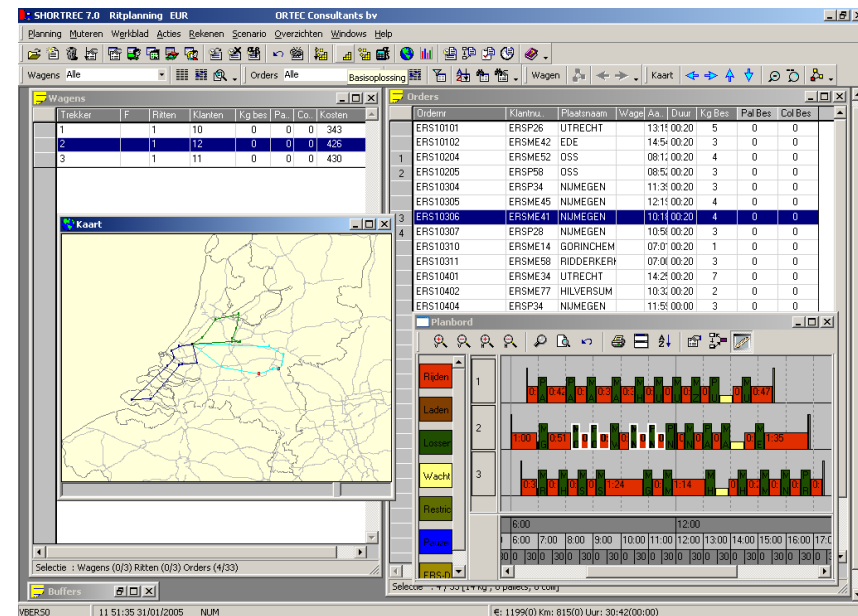
Urban consolidation

Why? For whom?

- › Urban consolidation => city perspective
- › *Optimizing logistics from the destination side*

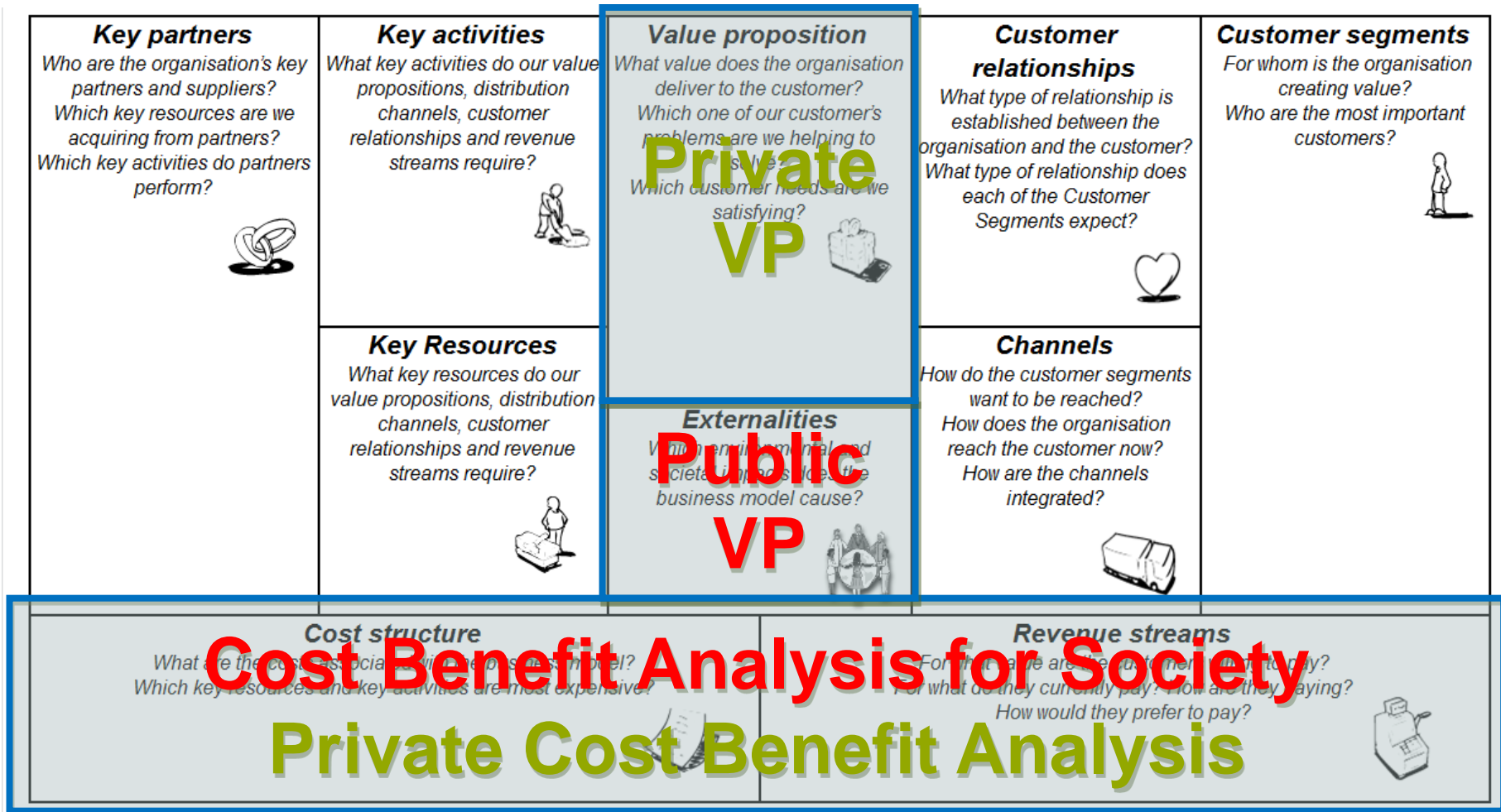


- › Current practice logistics planning =>
- › *Optimizing logistics from the origin side*
(e.g. carriers' warehouse, retail distribution center)



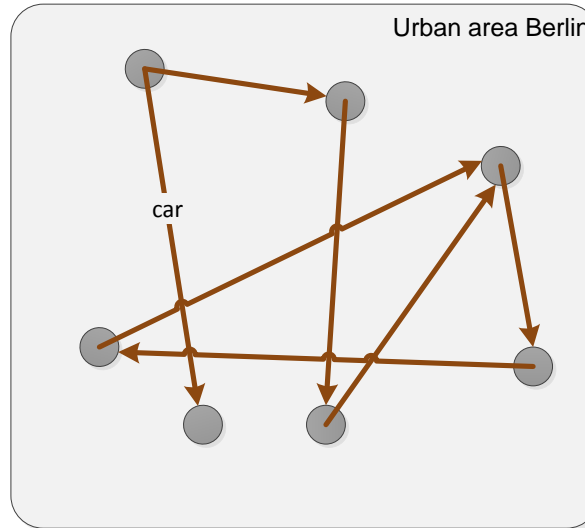
Urban consolidation

Business model canvas and value proposition

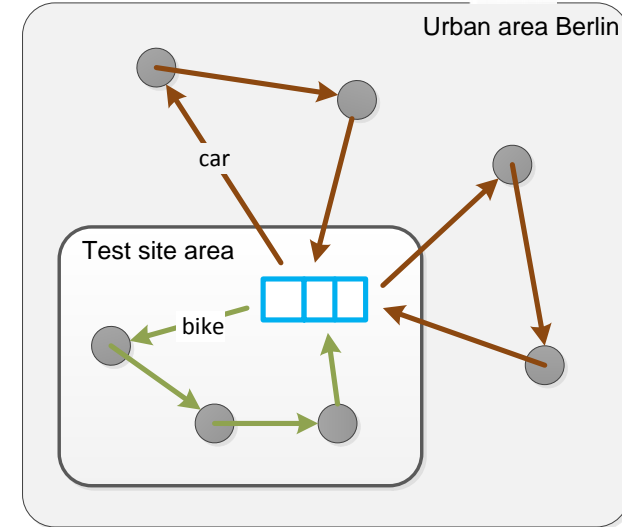


Case 1:

Bentobox transshipment bike - van



Initial situation

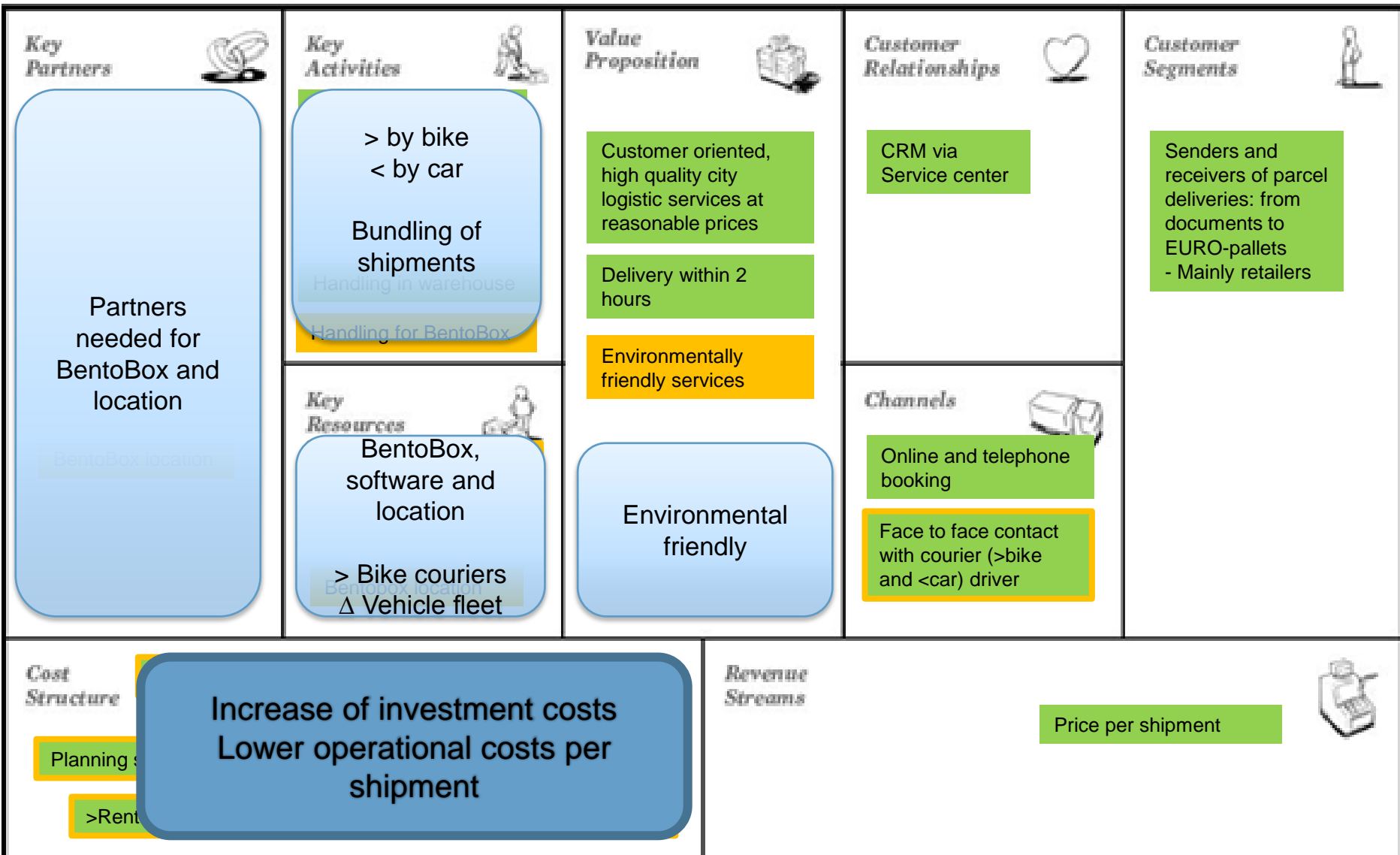


BentoBox situation





Case 1: Bentobox transshipment bike - van



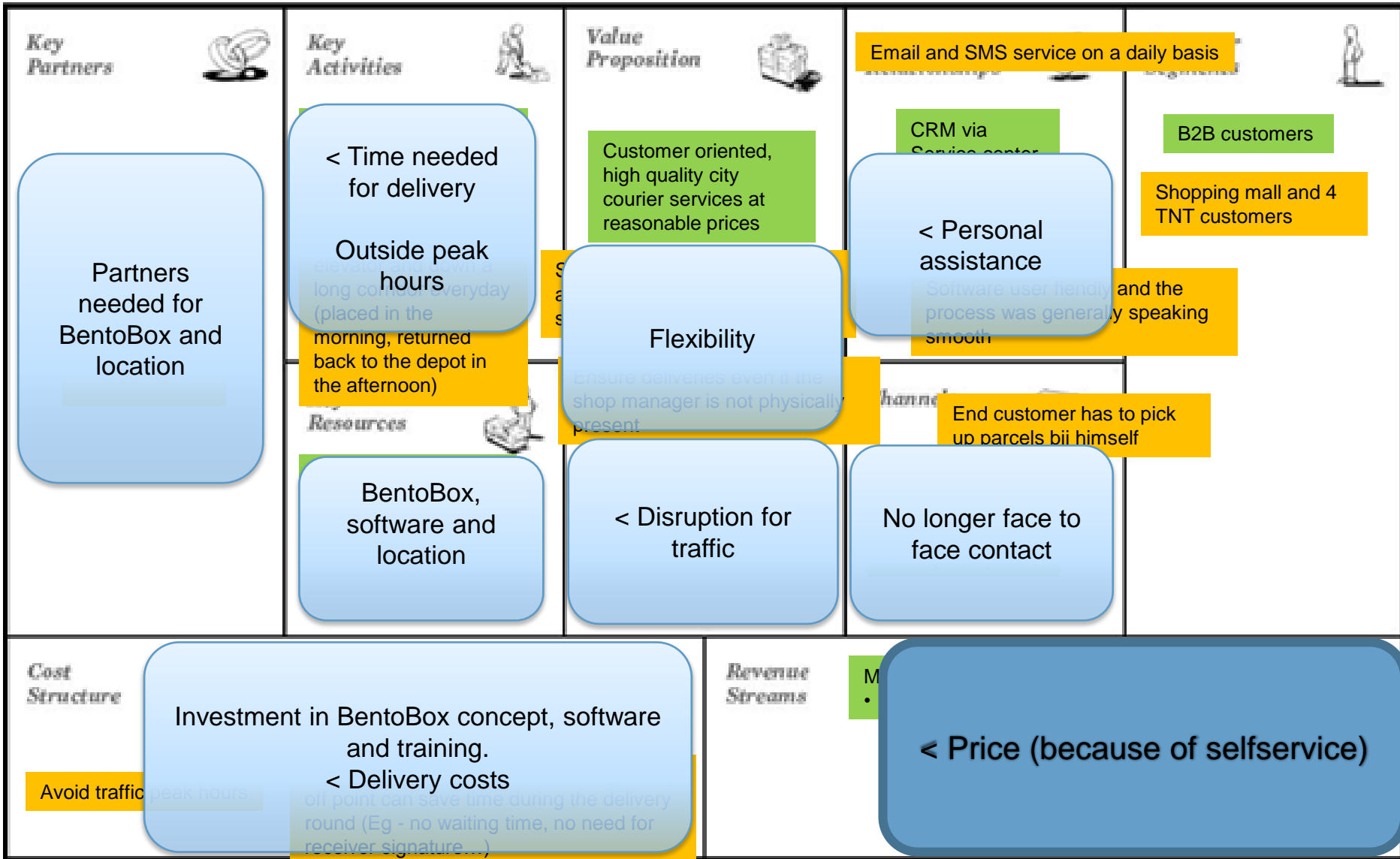


Case 2:

Bentobox as delivery locations retail deliveries



Case 2: Bentobox as delivery locations retail deliveries



Urban consolidation

Business model and value proposition

Δ?

Key partners Who are the organisation's key partners and suppliers? Which key resources are we acquiring from partners? Which key activities do partners perform?	Key activities What key activities do our value propositions, distribution channels, customer relationships and revenue streams require?	Value proposition What value does the organisation deliver to the customer? Which one of our customer's problems are we helping to solve? Which customer needs are we satisfying?	Customer relationships What type of relationship is established between the organisation and the customer? What type of relationship does each of the Customer Segments expect?	Customer segments For whom is the organisation creating value? Who are the most important customers?
Key Resources What key resources do our value propositions, distribution channels, customer relationships and revenue streams require?		Channels How do the customer segments want to be reached? How does the organisation reach the customer now? How are the channels integrated?		
Cost structure What are the costs associated with the business model? Which key resources and key activities are most expensive?		Revenue streams For what value are the customers willing to pay? For what do they currently pay? How are they paying? How would they prefer to pay?		

Business as usual
 Urban freight transport
 organized form
 logistics perspective
 (origin-based)

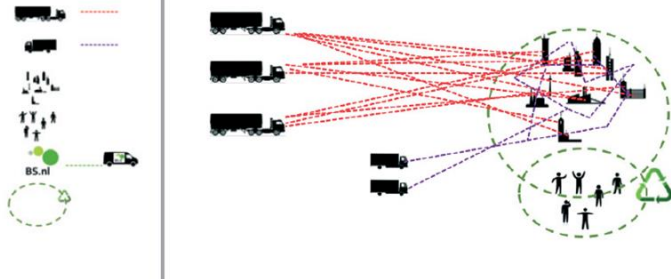
Key partners Who are the organisation's key partners and suppliers? Which key resources are we acquiring from partners? Which key activities do partners perform?	Key activities What key activities do our value propositions, distribution channels, customer relationships and revenue streams require?	Value proposition What value does the organisation deliver to the customer? Which one of our customer's problems are we helping to solve? Which customer needs are we satisfying?	Customer relationships What type of relationship is established between the organisation and the customer? What type of relationship does each of the Customer Segments expect?	Customer segments For whom is the organisation creating value? Who are the most important customers?
Key Resources What key resources do our value propositions, distribution channels, customer relationships and revenue streams require?		Channels How do the customer segments want to be reached? How does the organisation reach the customer now? How are the channels integrated?		
Cost structure What are the costs associated with the business model? Which key resources and key activities are most expensive?		Revenue streams For what value are the customers willing to pay? For what do they currently pay? How are they paying? How would they prefer to pay?		

Urban consolidation
 Urban freight transport organized
 form city perspective (destination
 based)

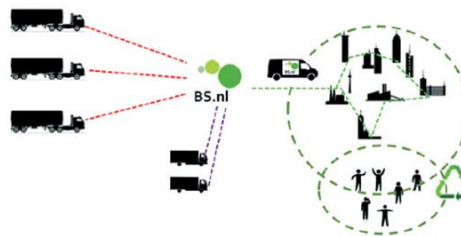
Binnenstadservice - introduction

A Dutch UCC active since 2008: The concept

Situation before 2008



Collective receiving point for
shopkeeper:
Binnenstadservice



Nijmegen

- one of the oldest cities in the Netherlands with over 161,000 inhabitants
- medieval city centre is situated on a small hill and has a historical structure with streets where many small, independent retailers are located

Urban consolidation

Case of Binnenstadservice

- › ‘Low price’ services packages for local stores: receiving goods, delivering goods at a predictable time, organizing reverse logistics (shopkeeper needs to change his/her delivery address to BSS)
- › Extra services (value proposition receiver): storage, home-deliveries, value added logistics, possibilities for e-tailing
- › Locally focus on small, independent retailers, since their deliveries are often not organized nor optimized.



Urban consolidation

Case of Binnenstadservice

- › Nationally focus on shippers and retail chains
- › BSS bundles deliveries of multiple suppliers
- › BSS uses clean transportation (value proposition authorities):
electric bicycles and natural gas trucks, electric vehicles

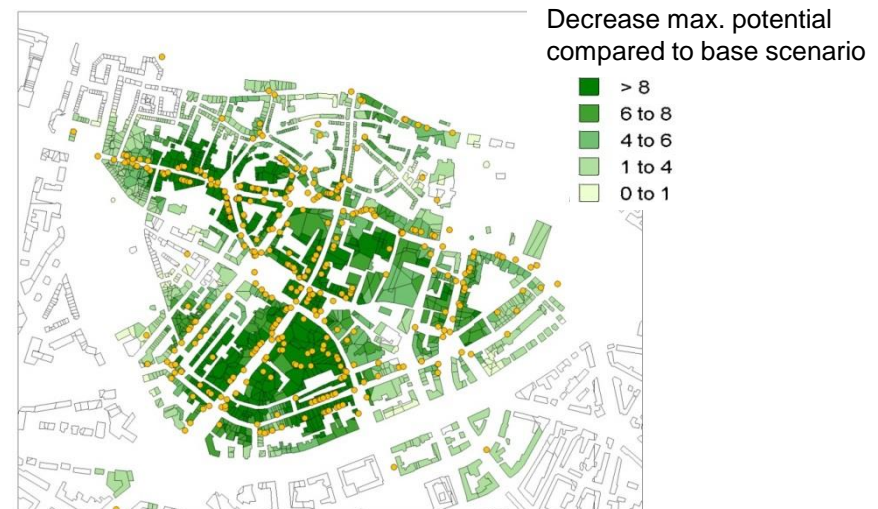


Urban consolidation

Case of Binnenstadservice: effects (after 1 year)

Local effects

- › Decrease in vehicle km (5% after 1 year, max. 32%)
- › Hardly any difference in NO₂ and PM10 concentration.
- › After one year small decrease of nuisance. In maximum scenario a clear shift towards nuisance fewer residents
- › Traffic safety and quality of life in city centre expected to be improved
- › VP to local society and local retail



Urban consolidation

Case of Binnenstadservice: effects (after 1 year)

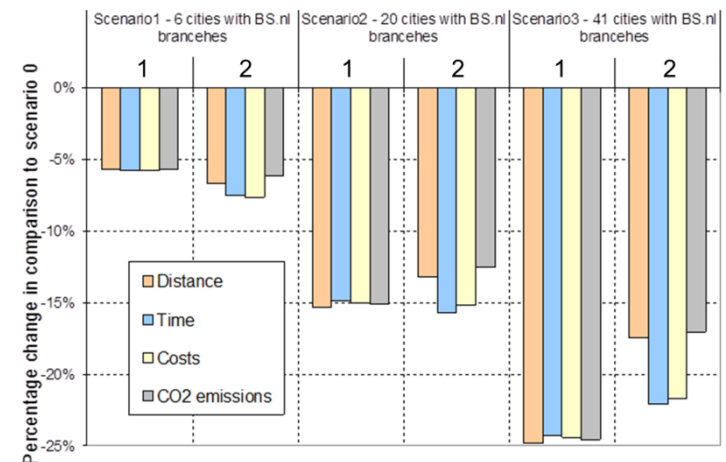
National effects (more cities with BSS simulated)

- › Considerable savings per delivery (for carriers)
- › Savings vary based on:
 - › Type of deliveries
 - › Limiting factor for length vehicle roundtrip
 - › Number of kilometers between city and carriers' DC
 - › Number of deliveries in city



Scenario 0 – no BSS
 Scenario 1 – 6 cities with BSS
 Scenario 2 – 20 cities with BSS
 Scenario 3 – 41 cities with BSS

- › VP to society and private carriers



Binnenstadservice

Multiple business models required

- › Starting with a 'free' service makes it difficult to develop to a financially viable business model => *always a fee for all services*
- › Difficult to get rid of label 'subsidized' => *use subsidy not for operations, local authorities as customer*
- › Local growth is difficult: costs (vehicles, staff, IT) develop non-linear in contrast to volume of customers => *develop towards non-asset based UCC*
- › National growth is difficult: local heroes / entrepreneurs needed, national coverage necessary for value proposition to shippers

Value propositions

- › Small retailers: is evident (but relatively limited), local hero required for each city
- › Shipper: only in case of national coverage
- › Carrier: no real proposition, last mile deliveries are the core of carriers' work
- › (Local) authorities: cleaner, quieter, less nuisance, safer

UCC in L'Hospitalet de Llobregat (Barcelona)

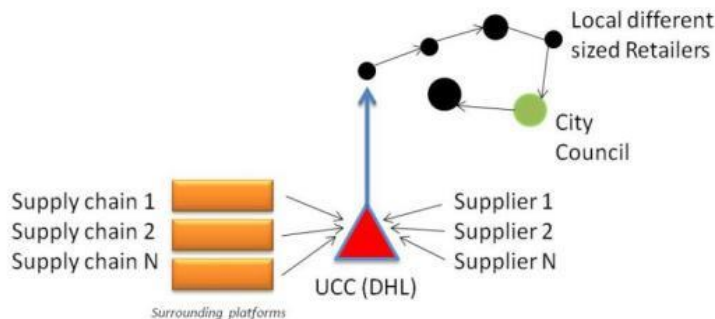
Demonstration in STRAIGHTSOL

Setting:

- › Demonstrating how UCC can work
- › Local retailers as customers
- › Local authorities as big launching customer
- › DHL Supply Chain as operator
- › Using existing facilities

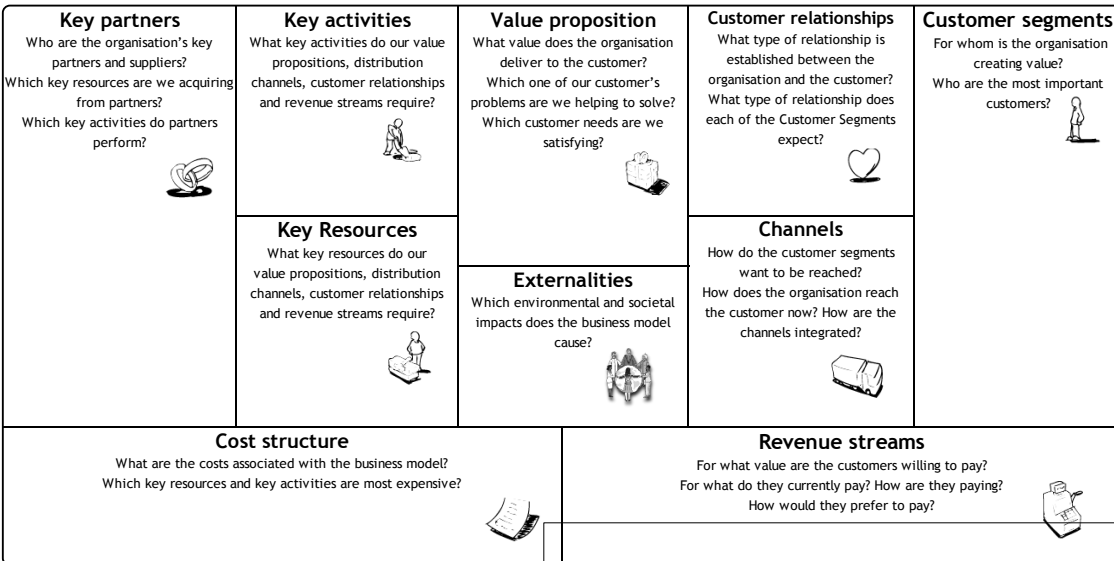
Issues after demonstration:

- › Financially viable business model
 - › Retail involvement, big freight attractors, local authorities, other carriers

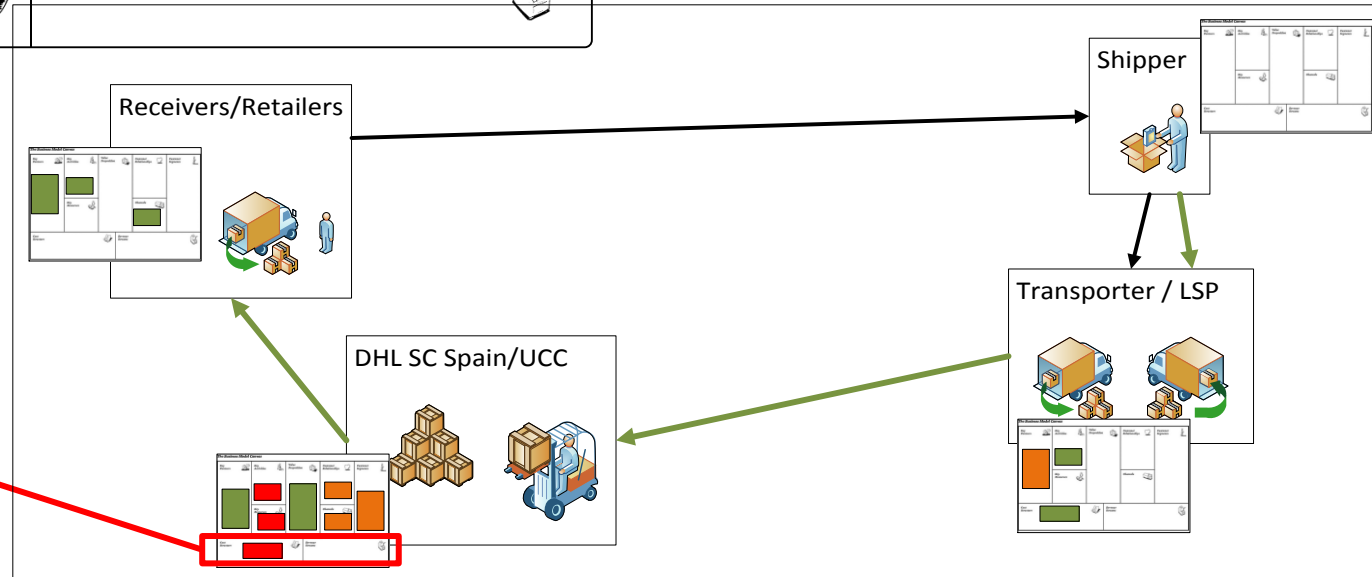


Urban Consolidation Centre DHL

Business models



*Negative
business
case*



Urban Consolidation Centre DHL

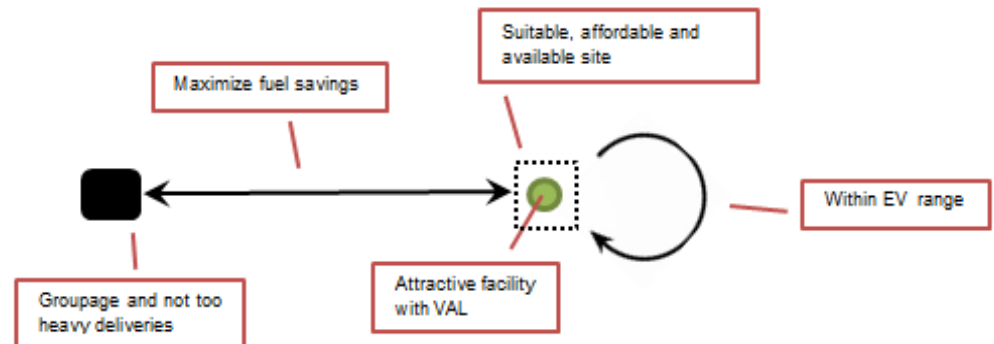
Lessons: possibilities for a financial viable UCC

- › Different value propositions for different stakeholders
- › Towards financial viability?
 1. Agreement with the *receivers* (small retail and big freight attractors) with other value added services for which they would like to pay
 2. Agreement with other *LSPs* for cost or benefit sharing
 3. Agreement with *shippers* (paying UCC separately for last mile delivery instead of only LSPs) => *requires other conditions*
 4. Serious entrance barriers (natural or by restrictions) for city
Active involvement of the municipality to restrict the entrance for not fully loaded / polluting or otherwise undesired vehicles in the city center
 5. UCC as enabler for other solutions such as electric vehicles or bicycles

Urban consolidation

Enabling zero emission city logistics

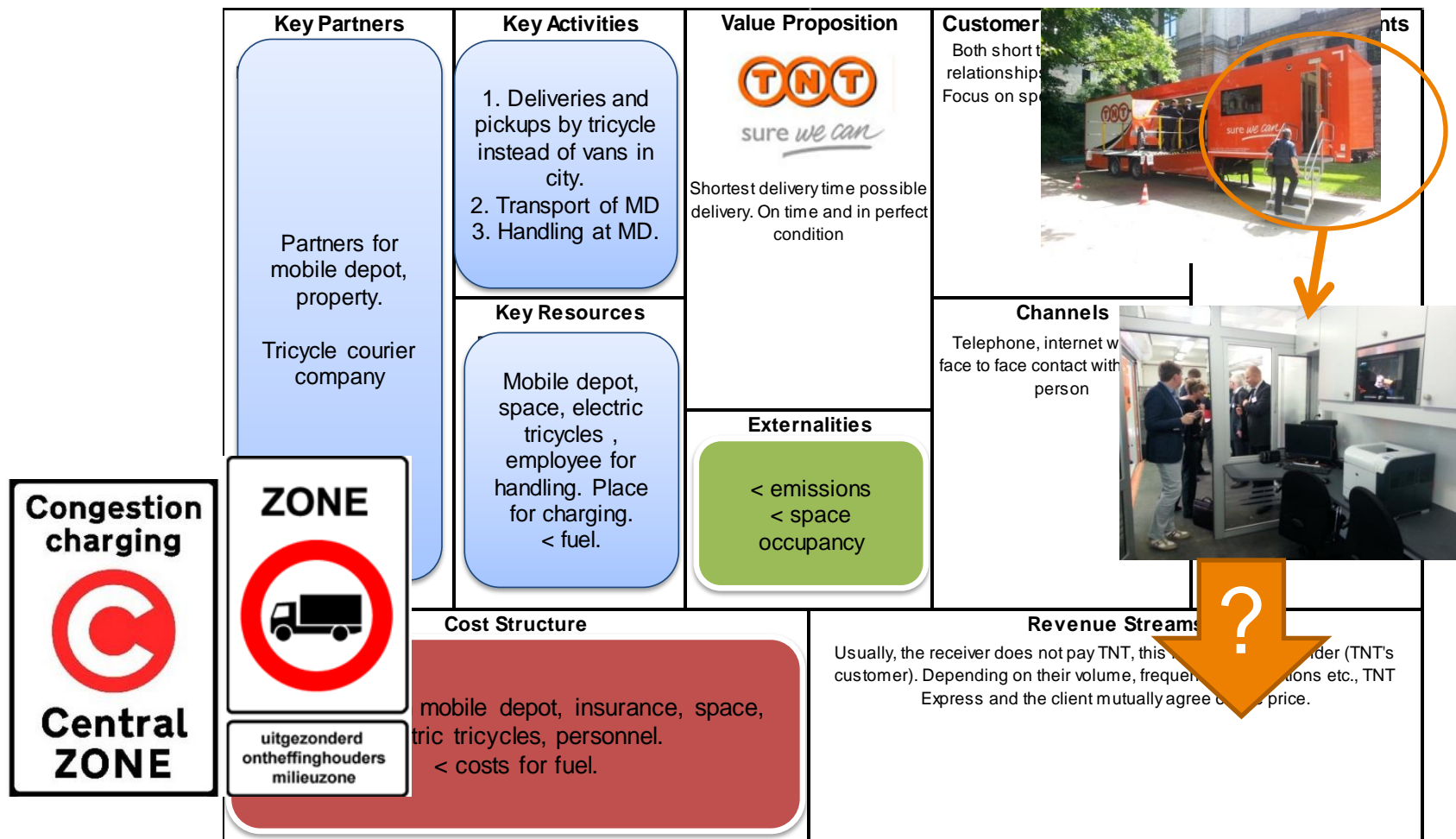
- › Limited vehicle capacity and range require adaptation of logistics system in order to use electric vehicles (EV)
- › Transshipment from conventional vehicles to EV at city border (transshipment site)
- › Potential to go from transshipment (single company) to consolidation at these sites
- › Examples:
 - › Cargohopper (TransMission) Amsterdam
 - › Madrid (FREVUE)
 - › TNT Mobile depot (STRAIGHTSOL)



Urban consolidation

Enabling zero emission city logistics

Example: TNT's Mobile depot (STRAIGHTSOL)



A viable business model??

- › It is not easy to find a viable business model
- › *Value proposition and creating revenues*
 - › Efforts in convincing stakeholders (local and national)
 - › Value for individual stakeholder value is often limited
 - › Different groups should be targeted with different value propositions
- › *Limit costs*
 - › Making use of existing infrastructure
 - › Interesting developments for zero emission city logistics (transshipment areas as enabler for consolidation)
- › Solution from city perspective (destination), so local actors (city authorities, local retail) should be supporting it

***Thanks for
your
attention***

Questions?

Hans Quak

hans.quak@tno.nl

+31 631792851