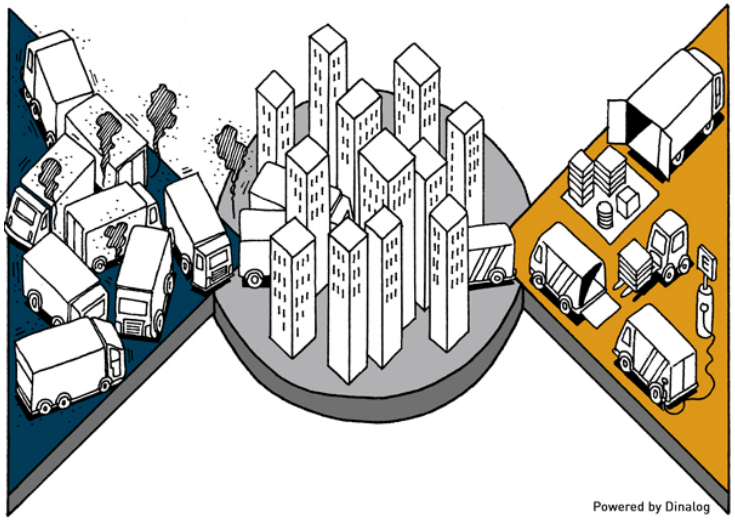
Understanding Viability of Urban Consolidation Centres: Regent Street (London), Bristol/Bath & Nijmegen



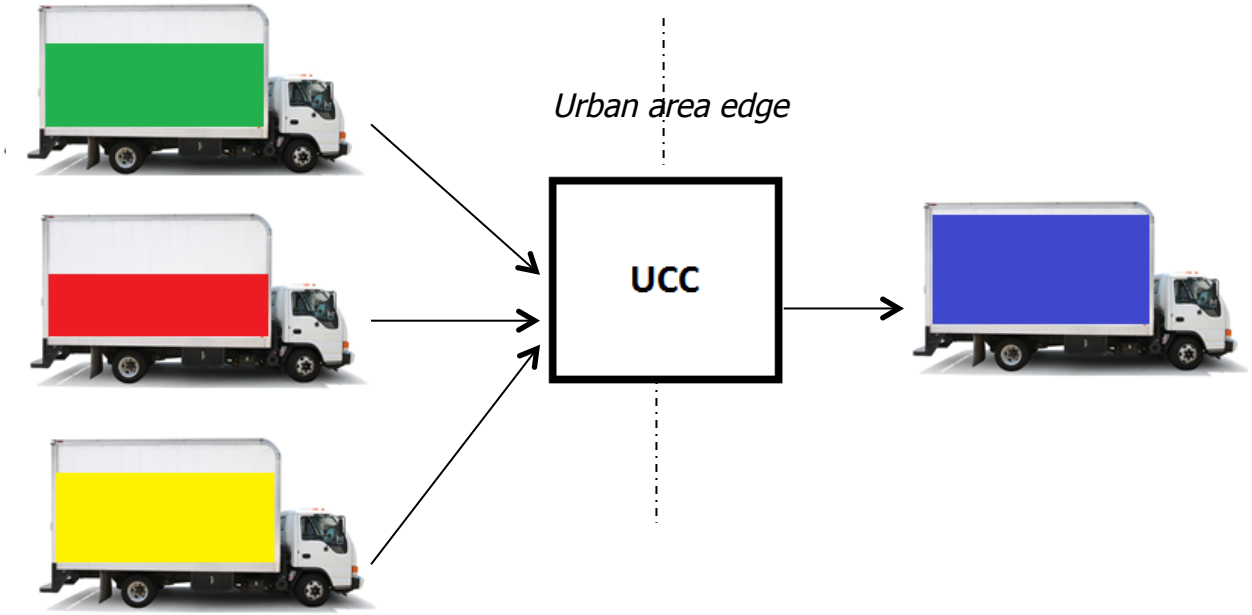
Dr. Ron van Duin (TUD)
Ir. Timo van Dam (TUD)
Dr. Bart Wiegmans (TUD
Prof. Dr. Lori Tavasszy (TUD, TNO)

Laden en lossen tijdens de ochtendspits (08.15 uur) in de Vieestraat: lastig voor fietsers en voetgangers.

Amsterdam, 13 APRIL 2016

The Urban Consolidation Centre (UCC)

A consolidation depot located at the edge of an urban area that provides services for a number of companies



Logistical benefits due to increased transport efficiency

- → 'Last mile' cost savings from 47% - 70%
- → More efficient organization of long & short-haul transport

Societal benefits due reducing the number of vehicles entering an area

- → Possibly making the vehicles that do enter more sustainable

Practice: Many UCCs are unviable

Not being able to yield greater revenues than costs and to sustain this over time

- Over **200** UCC projects failed, mainly due to financial unviability
- Though a few did not…
- Why???
- How???

Breda stopt met stedelijke distributie
08-02-2016

We need it!

We want to understand it!

Research goal:

Provide insights in how to organize a viable UCC,
by conducting an explanatory research on these viable UCCs

The Urban Consolidation Center

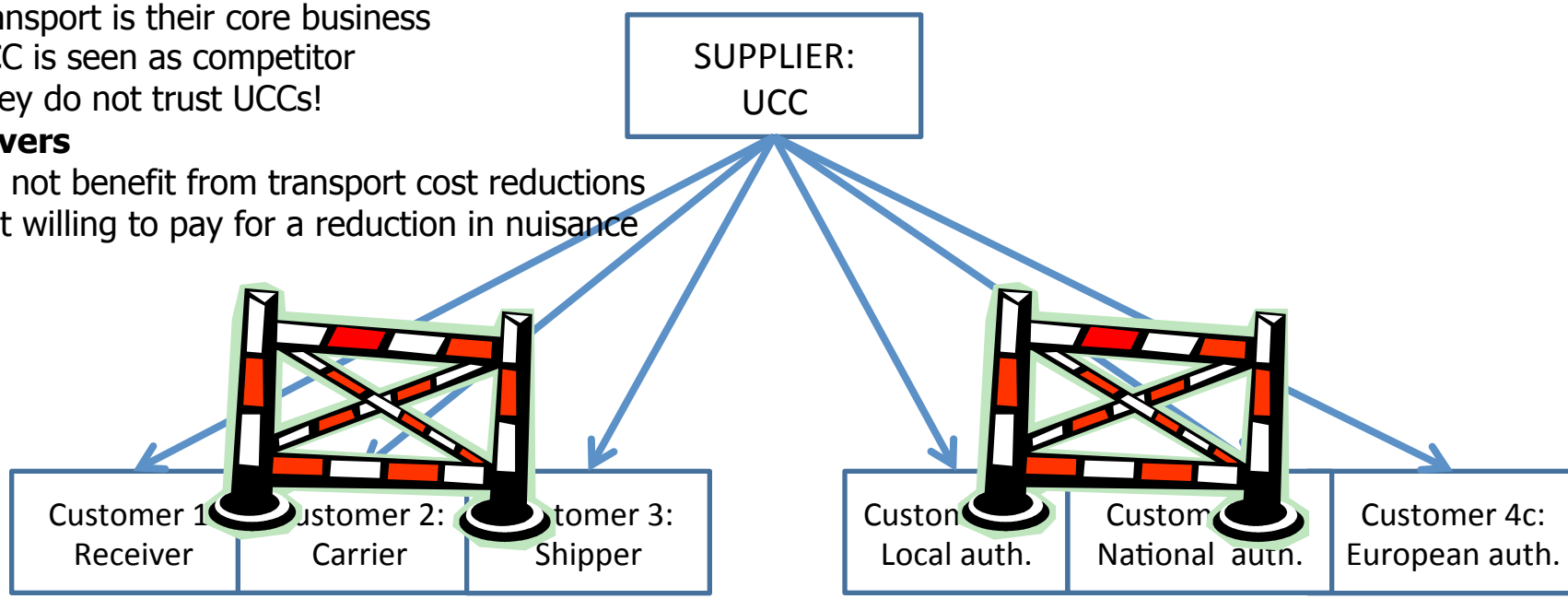
Barriers in establishing buyer-supplier relations

Shippers
- Operates on a national scale
- UCC offers local services
- Transaction costs > transport savings

Carriers
- Transport is their core business
- UCC is seen as competitor
- They do not trust UCCs!

Receivers
- Do not benefit from transport cost reductions
- Not willing to pay for a reduction in nuisance

Public authorities
- Subsidies are a ongoing financial burden
- Subsidies promote unfair competition and can compromise the sustainable impact.

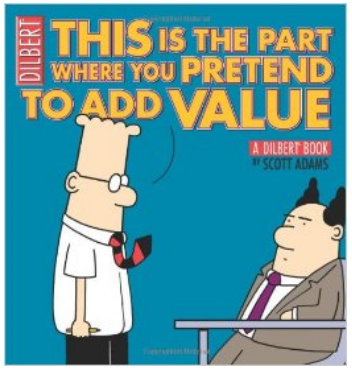


Customer segment: Logistical users

Customer segment: Public authorities

How does including the UCC in the urban freight system results in ***the creation of added value*** *for the* ***involved system stakeholders*** *?*

THEORY FOR EXPLAINING THE CREATION OF ADDED VALUE



Value network theory(*)

Value is created in business relations

Public authorities

UCC ↔ Logistical users → Cooperation beyond:

- The buyer-supplier relation
- The UCC organizational boundaries

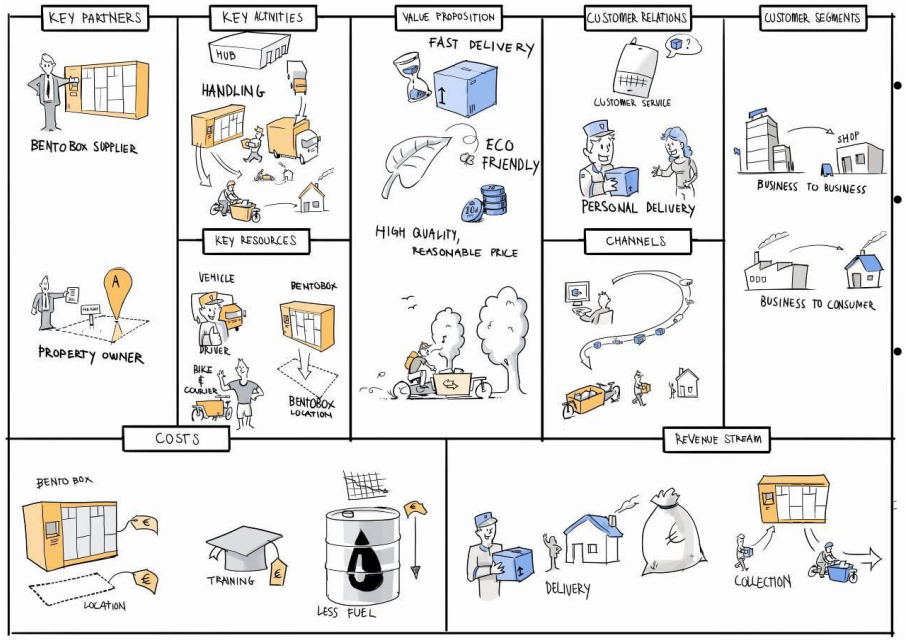
↓

Value network theory → **Value is created in business relations**

"A value network creates value through dynamic exchanges between one or more enterprises"

(*)Kothandaraman & Wilson, 2001: Allee, 2008; Ellegaart et al. 2009)

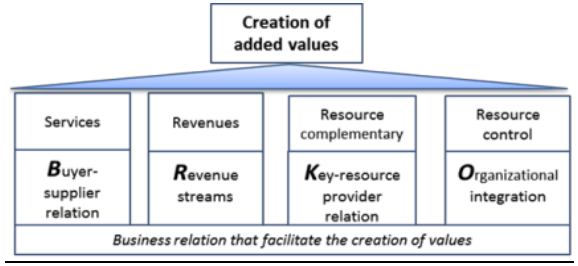
Business Model Canvas (BMC) of Osterwalder & Pigneur (2010)



Example of a BMC for the Bentobox as consolidation hub (Quak et al., 2014)

- ***one single company***' s internal business model rather than a ***partner network*** (de Reuver et al., 2013).
- BMC' s strength is ***not*** to reveal how added value is created in business relations ***beyond the boundaries of the individual firm.***
- little detail to the ***design variables***, which does not correspond to the ambition to identify ***key-success factors***

Four types of business relations



That facilitate the creation of four types of added value(*)

- **O**rganizational integration

Organizations can obtain *resource control by organizational integration* (Casciaro & Piskorski, 2005). This entails system stakeholders integrating with the UCC operating entity and thereby gaining access to key-resources. Thus, the indicators that reveal organization integration entail different type of organizational structures

- **R**evenue streams

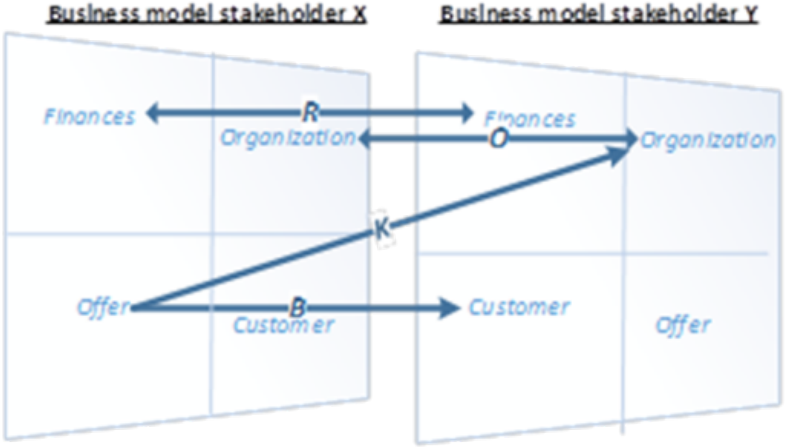
This relation corresponds with an overlap in the finances component.
It facilitates value creation due to the creation of revenues (Allee, 2008)

- **K**ey-resource provisioning

This relation corresponds with one offering *key-resources* as key infrastructure for the other. It facilitates value creation through resource complementary and supplementary (Wassmer & Dussauge, 2011);

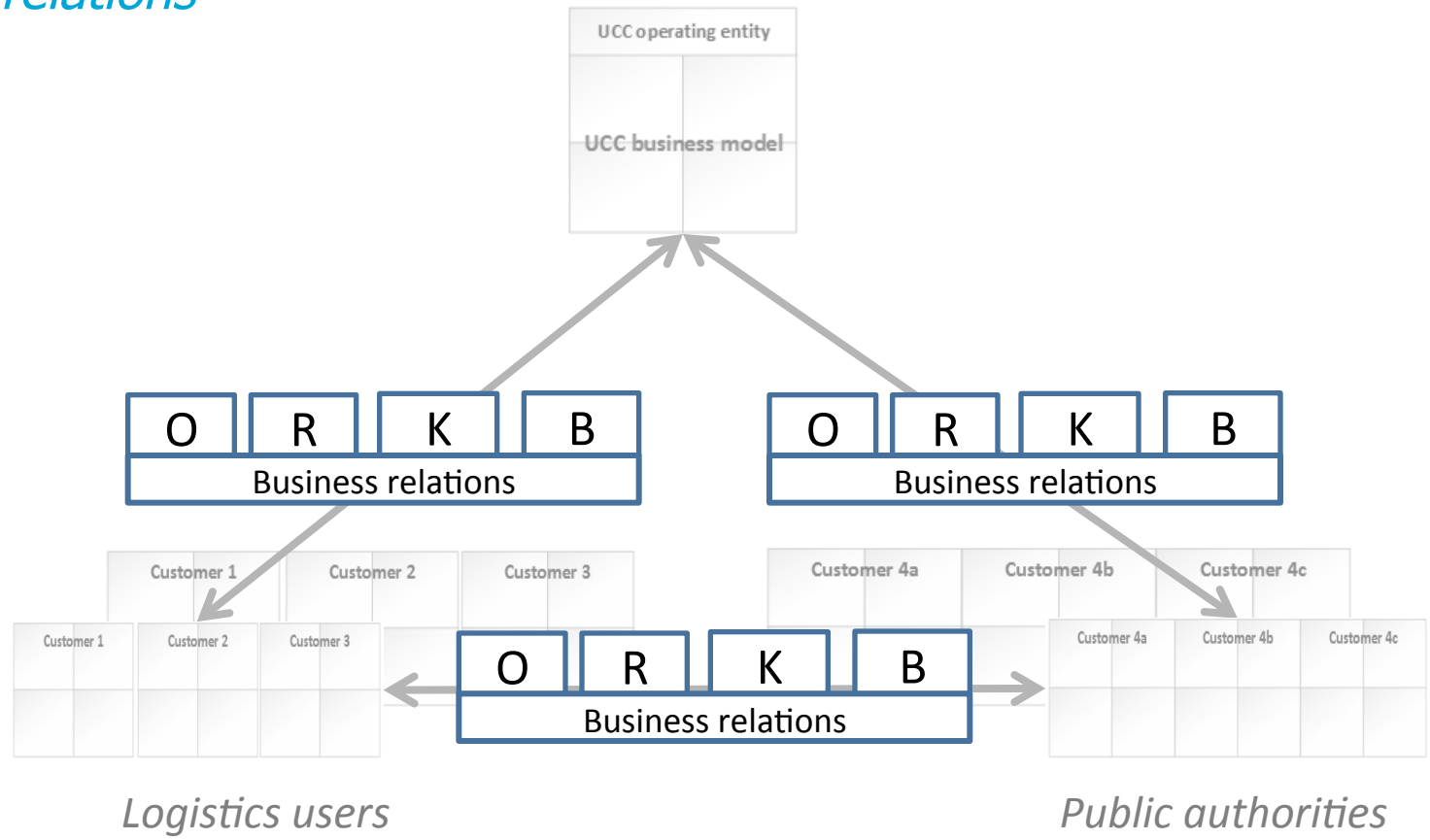
- **B**uyer-supplier relation

This relation corresponds with the *exchange of a service* – one consumes the offer of the other. It facilitates value creation by offering services that fits the needs and desires of the service consumer (Allee, 2008)



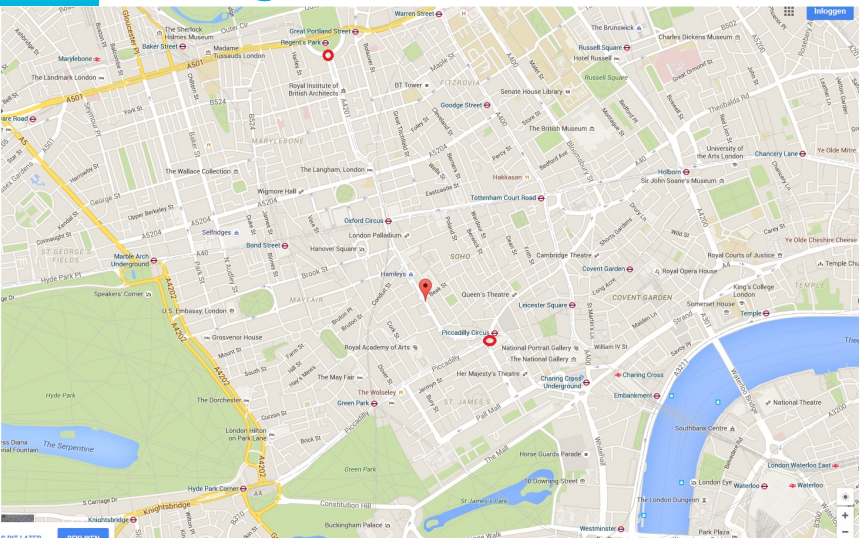
The ORKB framework

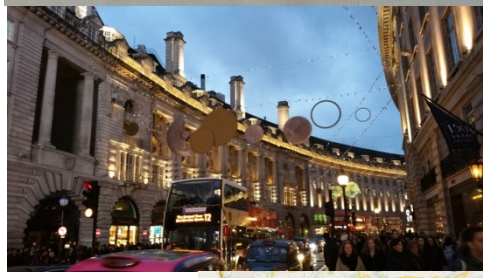
An analytical framework for evaluating value creation in business relations

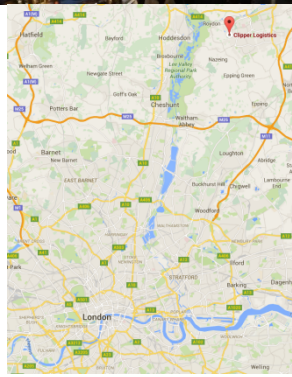


Case study research

Regent St. UCC - London







Facts & Figures

- Harlow, 50 km
- 700 small and medium sized businesses, and over 150 retail and catering outlets
- Morning and afternoon rounds both take about 5-7 hours
- 2 electric trucks 10ton/9.6ton
- Load Factor> 75% (100%!!), 21 retail customers, 20-30% share

Services

- **City distribution to stock;**
- **Delayed cross dock;**
- **Return logistics (packaging materials, returns, inter-branch transfers);**
- **Stock holding facilities;**
- **Pre-retail services (pricing & unpacking services).**

Case study research

Bristol-Bath UCC

Facts & Figures

- Avonsmouth, 16 km to Bristol , 48 km to Bath
- Broadmead area, almost all receivers are outlets of large retail chains
- Bath small-to medium size retail outlets (telecommunications, fashion, perfume, body shop)
- The distribution of the goods requires 8 hours
- Operating range-120 km, max speed-60 km/hour, capacity 2.5 ton, and recharging time-8 hours
- Average Load Factor 74%

Services

- **City distribution to stock;**
- **Delayed cross dock;**
- **Peak/seasonal storage & Crisis stock management;**
- **Off-hours deliveries;**
- **Facilitating return flows (waste & returns);**
- **Pre-retailing services.**

Case study research

UCC BinnenStadService Nijmegen

Facts & Figures

- BSS's consolidation center is located about 1.5 kilometers
- The small and independent retailers pay a standard fee for BSS' basic service
- CNG truck and an electric bicycle
- 180 retail shopkeepers

[redacted]

Services

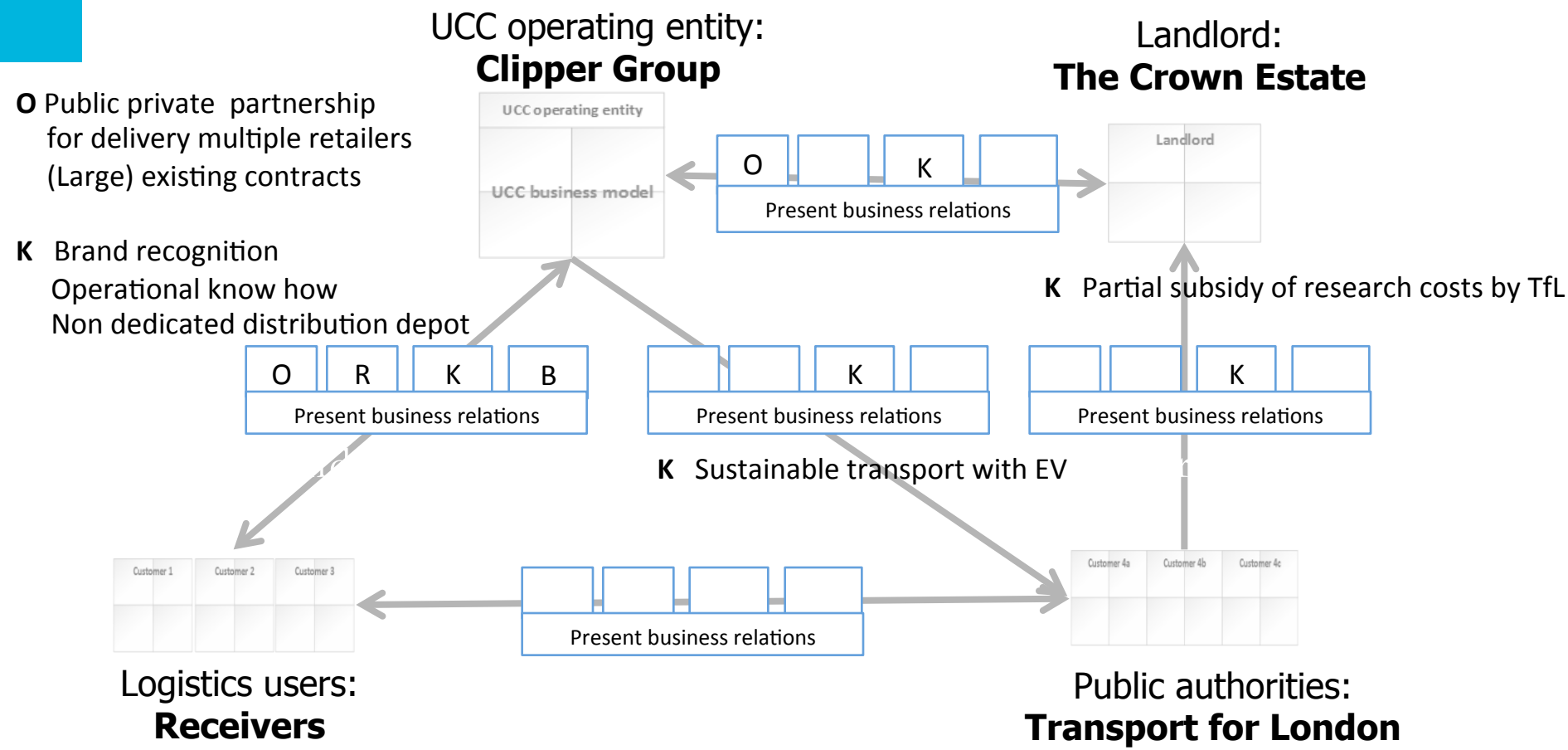
- **Home-deliveries (for large goods);**
- **Delayed cross dock;**
- **Stock holding facilities;**
- **Value-added logistics including retour logistics (of for example clean waste).**

The Regent St. UCC

(O, K) relations

O Tender contract 5 years,
Not performanced based,
Asset management by Clipper

K 30% subsidy of EV capital cost



The Regent St. UCC

Revenues

Table 6: Regent St. UCC estimated costs/revenues for 2014* (K.Pound)

Cost	MIN	MAX	Revenues	MIN	MAX
Labor cost	*150*	*204*	*Income generated by providing city distribution services*	*140*	*467*
Depreciation cost distribution vehicles	*26*	*36*	*Subsidies*		
Rent cost			*Losses*	*46*	*0*
Vehicle maintenance costs	*5*	*7*			
Energy costs of EV vehicles	*5*	*7*			
Real estate insurance					
Finance costs	*0*	*6*			
Profits	*0*	*207*			
TOTAL	**186**	**467**	TOTAL	186	467

The usage fee is 3.20 pounds per box or hanging set.
A hanging set has 5-8 hanging units.

The Regent St. UCC

B The added values per stakeholder

Cooperation is leveraged by a win-win situation!

Clipper Group

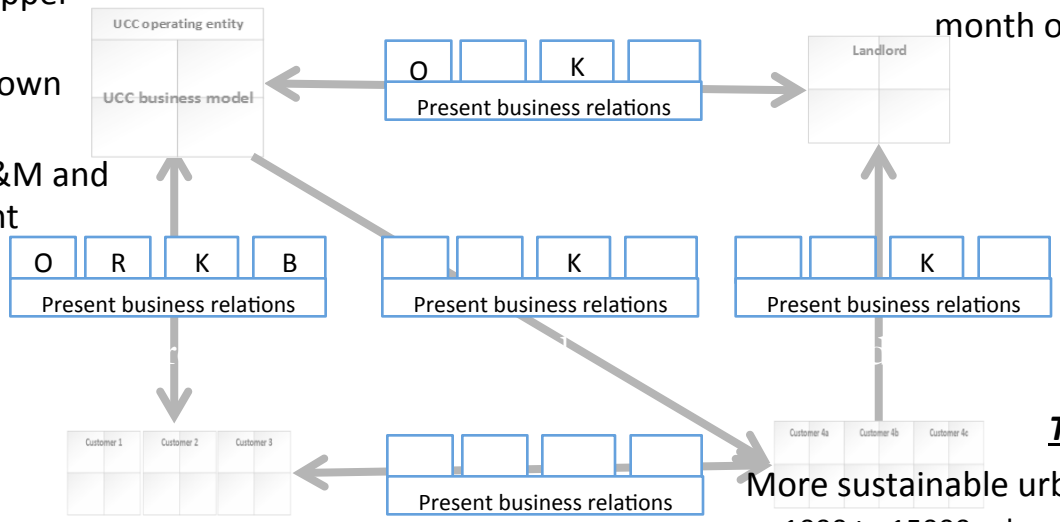
- Profits
- Competitive advantage due to green credentials

The Crown Estate

- UCC safeguard property value
- Reduction in the negative impact delivery vehicles on congestion and real-estate value; The UCC reduces Regent St. vehicles visits by 207 / month of which 139 during peak.

The UCC

- Added value due to Clipper Group involvement
- Added value due to Crown Estate involvement
- Added value due to H&M and LK Bennett involvement



Transport for London

More sustainable urban transport:

1000 to 15000 urban area vehicle kms/month
6000 to 30000 vehicle kms during peak hour/month
11000 to 33000 total fossil fuel vehicle kms /month
22 to 192 kg/month NOx emission
2 to 6,5 kg/month PM10 emission
1000 to 5500 kg/month CO2 emission

Receivers

- Improves service quality for similair costs as part of a national/regional solution
- Green credentials matching the Corporate Responsibility Strategy

Key Case Learnings(I)

1. The 'landlord' is a potential UCC customer & system participant
2. 'Green credentials' of the service can be of value to retail chains and shippers
3. Retail chains and shippers can bring large volumes that provide revenues & efficient operations
4. Shippers *and large retail chains* desire the UCC to service large (national) geographical area's
5. Carriers *and receivers* have an initial mistrust towards UCC operations and have to be convinced
6. Problems (contextual factors) drive the creation of added value
   - Distribution related problems – ea. *congestion, historic centres, congestion charge*
   - Inventory holding related problems – ea. *Many deliveries/day, high floorspace costs, risk on floods*
   - Social problems – ea. *Struggle to meet EU norms, congestion, damages to historic centre*
   - Urban freight transport affecting *property value*

Key Case Learnings(II)

7. *Viability findings*

The Bristol-Bath UCC is not viable

Strong dependency on city councils subsidies, which are not easily legitimized

UCC Nijmegen is viable when 100% participation is established

Regent street is viable…..large logistics service provider with national scale and large retail chains

Conclusions & Future research

1. Explanations for the viability of the Bristol-Bath, Regent St. UCC & BinnenStadService Nijmegen

2. An empirically validated analytical framework
   - Empirics proofed that to explain UCC viability relations should be considered BEYOND the buyer-supplier relations and beyond the UCC organizational boundaries
   - It works
     - Case study results have been validated by key-informants
     - Revenues should be estimated……the real figures are not known due to strong competition

3. Uniformly evaluate viable UCCs ……

   My offer 1 or 2 students ….CASES WANTED……..j.h.r.vanduin@tudelft.nl

   - More cases 1 in The Netherlands, 2 foreign cases (CityDepot, Brussels; SimplyCité in Saint-Etienne)

Wetenschappelijke artikel

J.H.R. van Duin ,T. van Dam, B. Wiegmans, L.A. Tavasszy, (2016). Understanding Financial Viability of Urban Consolidation Centres: Regent Street (London), Bristol/Bath & Nijmegen. Transportation Research Procedia.

THANK YOU FOR YOUR

(URBAN FREIGHT) ATTENTION!