

SUGAR

The feasibility of In-town UCCs

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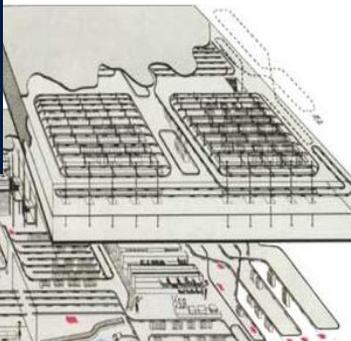
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Cambra de Comerç
de Barcelona

estudi
■ llotja

INFRASTRUCTURES I TERRITORI



BESTUFS - on UCC feasibility

- ▶ Although there is no strong evidence that any truly self-financing schemes exist, the long term aim must be for them to be self funding.

BESTUFS Urban Guide, 2011

Basic concepts: What is it? Functions?

An Urban Consolidation Centre –UCC- is a *logistics platform* that facilitates goods *distribution in urban areas where access restrictions apply* (times of day, size & type of vehicle, etc.).

It implies breaking the supply chain, reception of delivery goods vehicles, consolidation and/or storage of merchandise, loading of consolidated goods on other vehicles that deliver to the final destination using optimized routes and times ... *ensuring post-delivery verification.*

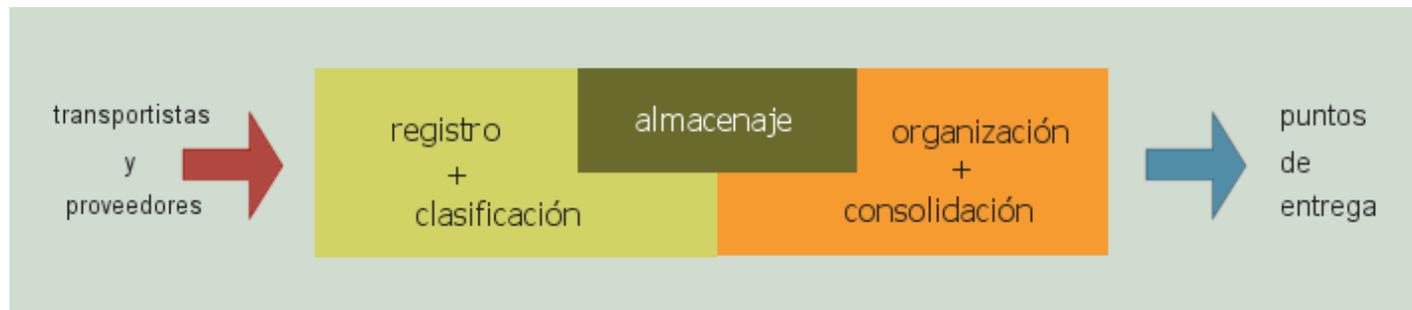
UCC definition – BESTUFS guide

“A logistics facility situated in relatively close proximity to the geographic area that it serves (be that a city centre, an entire town or a specific site such as a shopping centre), to which many logistics companies deliver goods destined for the area, from which consolidated deliveries are carried out within that area, in which a range of other value-added logistics and retail services can be provided.”

Basic Concepts: model, key issues

- Principal benefactor: the city → public initiative + investment

The Key: substitute multiple suppliers for a single-centred operator



- Model assumed: public ownership with concession to private management.**
- Reorganize delivery schedules (UCC reception separated from delivery): minimize costs**
- Need for a critical mass in order to optimize the process**

Breaking supply chain + modified schedules → habit changes needed

Sant Andreu pilot 2007 (study origin)



Led by Trader Association «L'Eix Commercial»

Warehouse provided by District Authority: 3 month trial

Not all goods handled: NO foodstuffs, nor heavy nor large goods

17 traders participated (of 45 possible total): NO additional charge

5 shippers + 4 shop suppliers

Despite low volume of goods handled, the experience caught the interest of the City's Chamber of Commerce



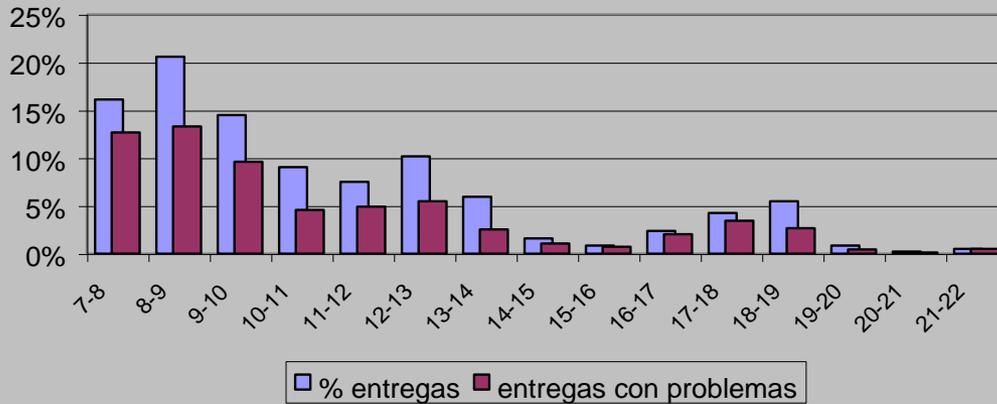
EU reference cases

	Siena (IT)	Genoa (IT)	La Rochelle (FR)
Operator (type of agreement)	COTAS / Coop F&T (voluntary pilot)	GEM (municipal concession)	Transport Genty, (municipal concession)
N° clients / participating shippers	10, mainly Bartolini CE	n.a.	12
Daily deliveries (n° packages / weight)	600 / n.a.	490 / 8T	400 ⁽²⁾ / n.a.
FLEET (refrigerated /total vehicles)	0 / 7	n.a. /10	1 / 7
workforce (persons)	7	12	4
annual cost (€)	350000	n.a.	208000 ⁽¹⁾
service price (€ / package)	2,5 to 4 acc. size	n.a.	3
access control: n° controlled entries, (time / type of limitation)	20 entries (exceptions authorised)	n.a.	15 entries < 3.5 T only between 06:00 & 07:30
location wrt city centre limit / (m ²) warehouse platform	1 km outside / n.a.	5 km outside / 1100 m ²	0,8 km outside/ 700 m ²

Prior observation of delivery patterns

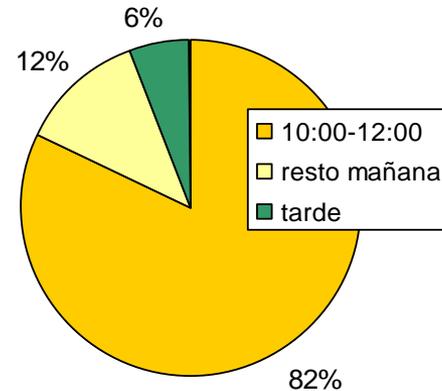
Unless regulations enforce a change...
 deliveries are concentrated during the morning

DISTRIBUCIÓN POR FRANJAS HORARIAS



12 Supermarkets Operators / suppliers
 Miracles project 2005

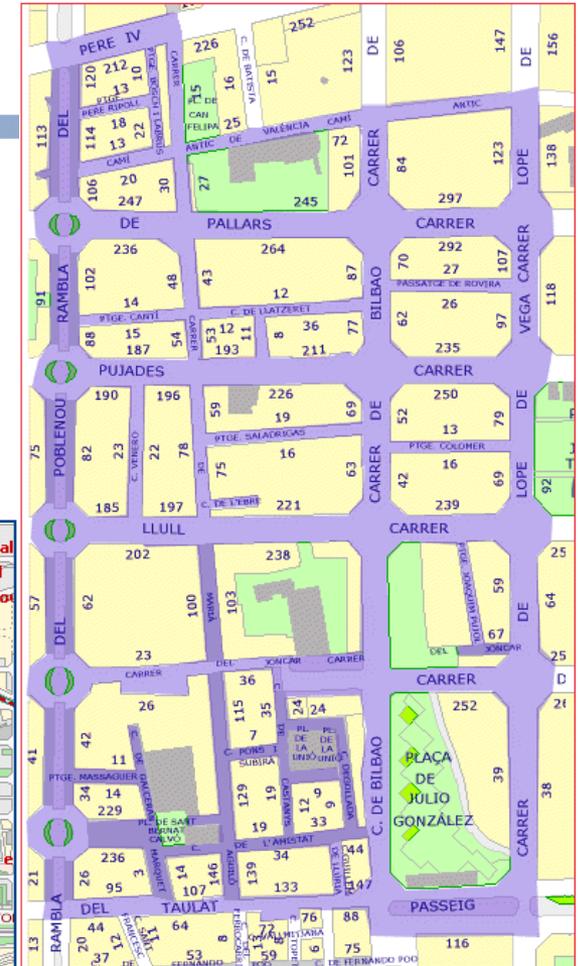
Horario Llegadas



General / packet shippers
 Sant Andreu 2007

Case studied: Poble Nou

- Within city, 1km from centre: 3 warehouse options examined
- Access control in operation along central axis
- Possibility to intervene in street parking regulations
- External access via coastal Ring Road, Diagonal & Gran Via



Eix Comercial del Poble Nou

Design considerations

Optimize resources:

- Organized activities
 - Technology -> automated operations
- Better management of the morning peak demand, delivery of re-consolidated loads
 - Reception during the night (20:00 to 24:00)
 - Unification of coding systems, web-base information /order-delivery tracing)

2 lorries + 2 electric vans: capacity to realize 300-350 m³ of deliveries daily

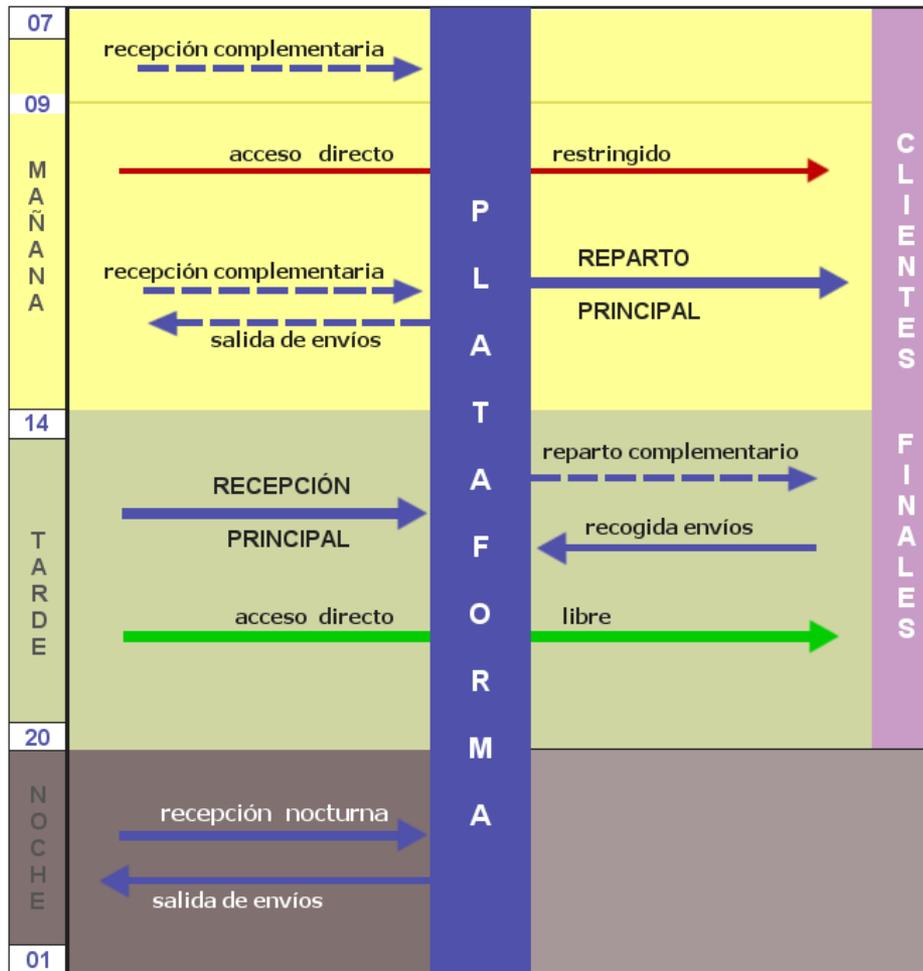
→ Platform of approx. 1.000 m² with 250 m² of useable storage

Workforce of 9-10 persons (monthly cost estimated to be ~28.000 €)

UCC receives during the afternoon (& night) & makes morning (+urgent) deliveries

- Controlled access – mechanism to promote / dissuade
- Establishes access privilege for UCC operator

Traffic by time of day: to platform, to outlets in zone

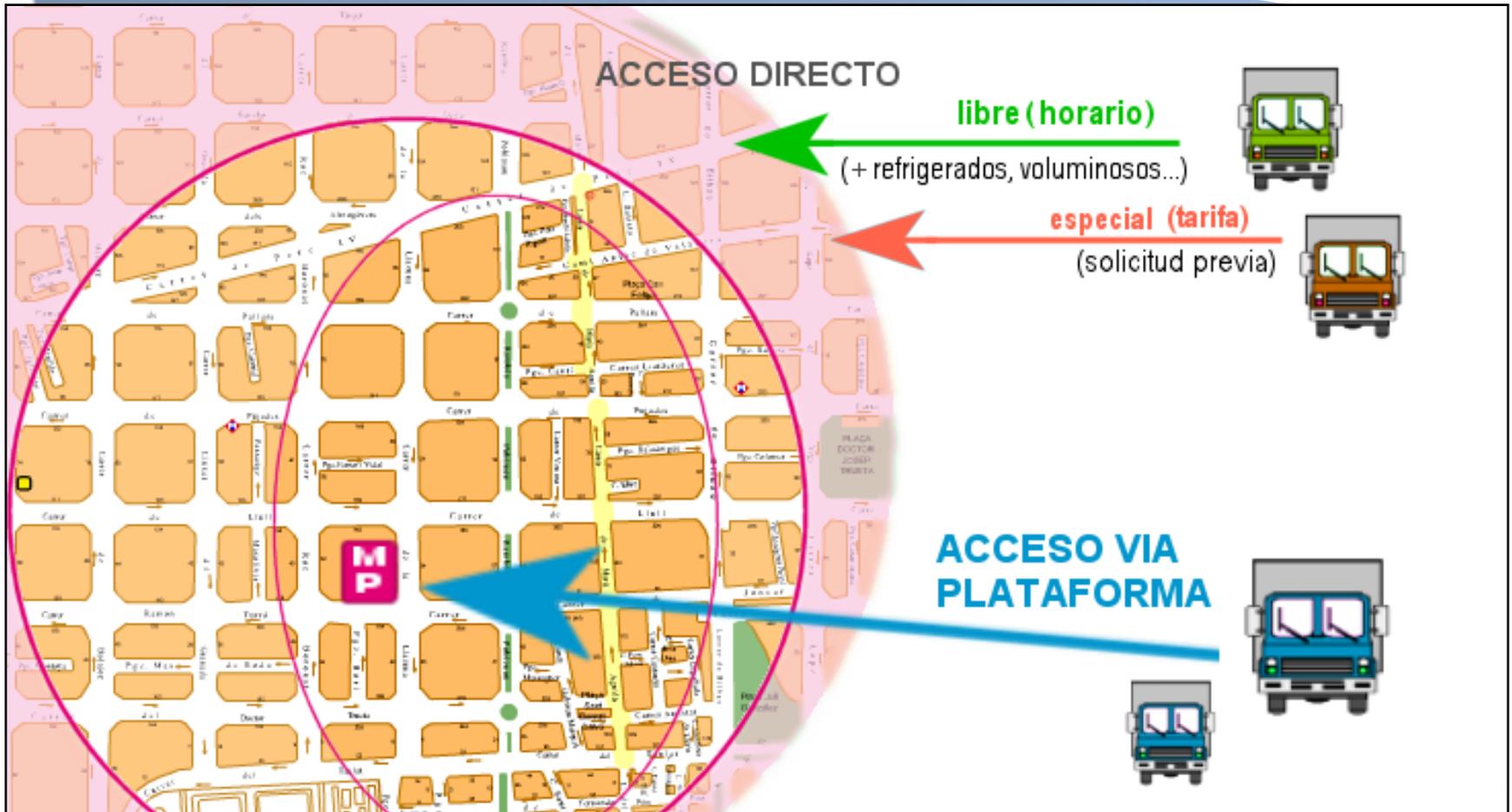


Distribution services of the platform united with controlled direct delivery
 +
 Work to maximize flow of goods through the platform

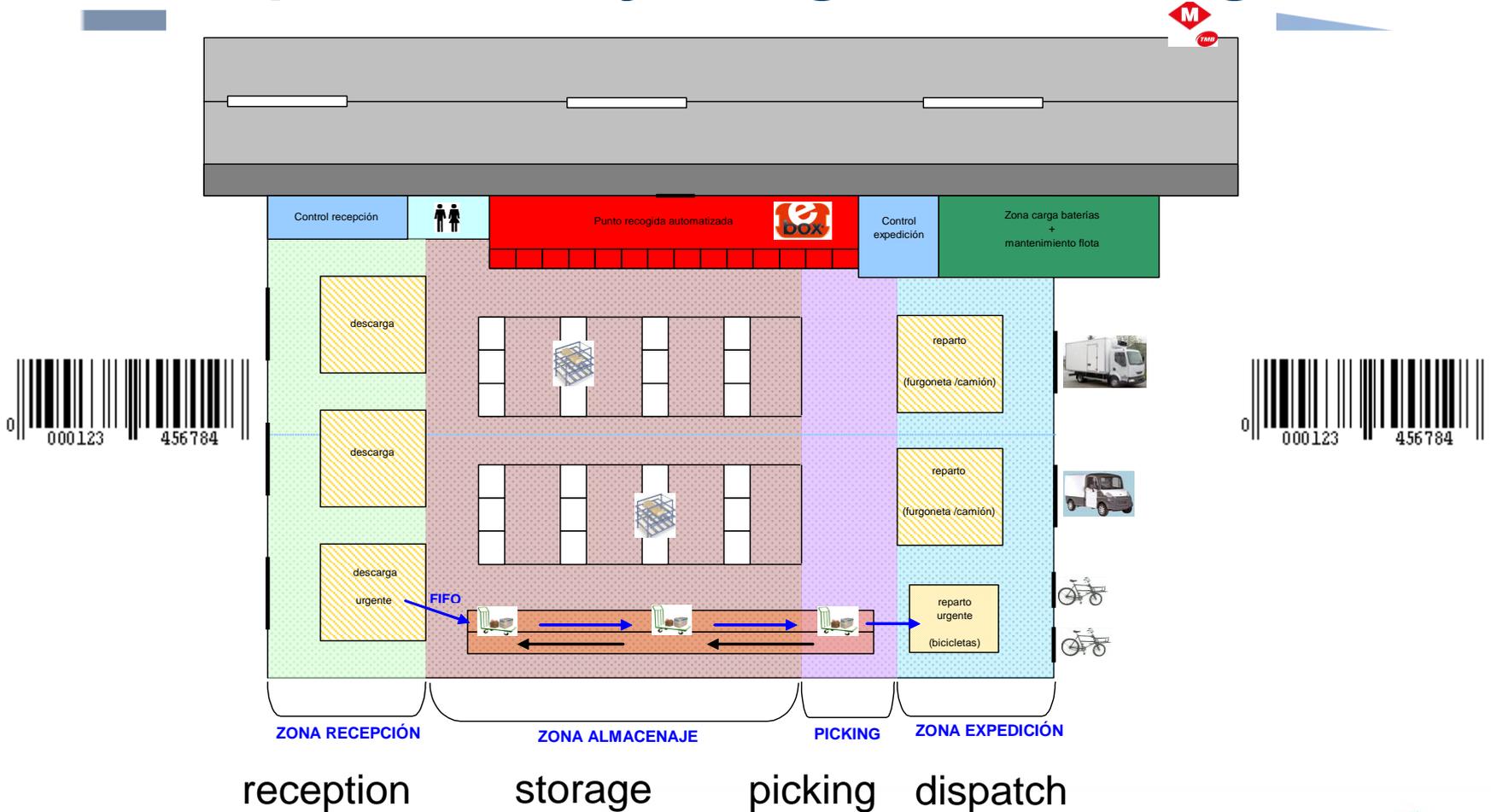
Zone Access Control

Integrated management (roads & platform)

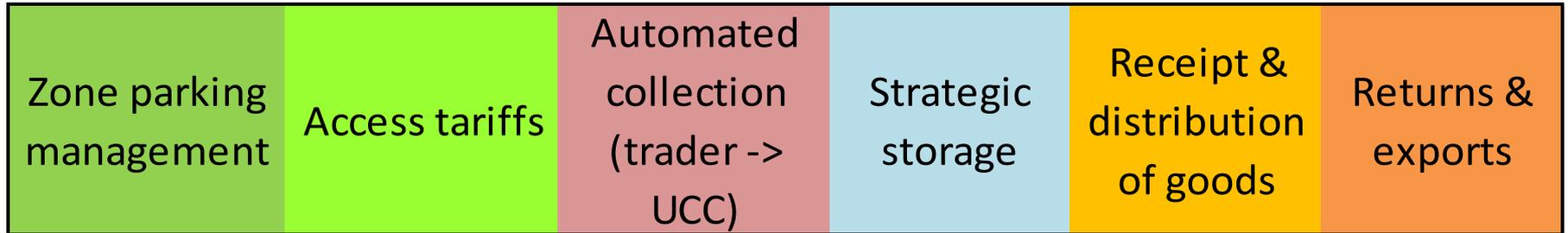
Managing access levels to UCC service area



UCC platform layout, goods tracing...



Services, revenue sources



Economic analysis made using private investment criteria.

Proposed tariffs by service / product

SERVICE	UNIT PRICE
Goods distribution:	
Van / Lorry / Nighttime	10 / 15 / 75 € / vehicle
Collection of goods for export from zone	3 € / package
Storage service	22 € /m2 / month
Automated collection from UCC	0 € / package
Privileged reception (urgent delivery)	25 € / vehicle

Annual revenues by service concept

Receipt & distribution of goods	114.190 €
Managing direct deliveries	25.000 €
Capture of goods for export, return	112.500 €
Strategic Storage	63.144 €
Managing street services (parking)	120.000 €
TOTAL annual income	434.834 €

Designing product tariffs – van example

VAN	5€/visit	5									
	packages delivered	1	2	3	4	5	8	10	15	20	
	€/package	5	2,5	1,7	1,25	1	0,625	0,5	0,333	0,25	
	estimated time saving	0	4	8	12	15	24	30	45	60	
	30€/hour	0	2	4	6	7,5	12	15	22,5	30	
	24€/hour	0	1,6	3,2	4,8	6	9,6	12	18	24	
	20€/hour	0	1,333	2,667	4	5	8	10	15	20	
	With 3 -5 PACKAGES the Shipper should use the UCC										

Computing income, checking operational capacity

Ingresos						
	m3/dia	preu / visita	visitas / dia	visitas /mes (adicionales)	visitas / año	ingreso anual
furgonetas		5	6	12	1644	8220
		5	8	12	2144	10720
	80	5	10	12	2644	13220
		5	12	12	3144	15720
		5	20	12	5144	25720
camion peq.	66	8	6	10	1620	12960
		8	10	10	2620	20960
		8	12	10	3120	24960
camiones noche		50	1	8	346	17300
		50	2	8	596	29800
		50	3	8	846	42300
		75	1	8	346	25950
		75	2	8	596	44700
	60	75	3	8	846	63450
	80	75	4	8	1096	82200
	20	100	1	8	346	34600
	40	100	2	8	596	59600
	60	100	3	8	846	84600
check: capacidad (145m3)	186					
total ingreso anual (transportistas de reparto)						85780

Costs of personnel (€ p.a.)

N°	Post	Functions	Cost p.a.[1]
1	Director	UCC Platform management Sales & promotion of services	56.000
1	Manager	Responsible for warehouse, storage, receipt & classification of goods	42.000
2	Reception	Reception, classification of goods	70.000
4	Delivery staff	Preparación de carga Reparto	168.000
0,4	Administration	Administration (40% dedication)	16.800
2	Night shift	Reception, classification of goods	84.000
10,4	TOTAL	€ p.a.	436.800

[1] Includes taxes

Investment (€)

FIXED MATERIAL	255.476 €
Conditioning of the warehouse	42.000 €
Delivery Vehicles	146.100 €
Transport within centre	44.376 €
Office, Equipment	3.000 €
Informatic equipment	20.000 €
FIXED OTHER	96.024 €
Legal Costs	1.024 €
Software development	95.000 €
TOTAL	351.500 €

Different rates of discounting apply, 5% p.a credit assumed.

Estimated total on-going costs (€ p.a.)

Personnel	436.800 €
Exploitation (financial, risk prevention..)	3.160 €
Structural costs (rent, maintenance, services...)	77.777 €
TOTAL p.a.	517.737 €

Estimated financial result for 1st year

1	Ingresos operación	434.834€
2	Beneficios ahorro CO2 (carbon trading)	512
3	Gastos de Personal	-436.800
4	Otros gastos de explotación	-3.160
5	MARGEN BRUTO	-4614
6	Gastos de estructura	-77.777
7	Amortizaciones	-37.755
8	Beneficio antes de Impuestos e Intereses (BAII)	-120.146
9	Intereses	-17.575
10	Beneficio previo Impuestos	-137.721
11	Impuesto sociedad 30%	0
12	Subvención	137.721 €
13	Beneficio neto	0

Ongoing expenses almost covered by proposed income (-4,5 %) *

- Overall, the result is a deficit of **-24%**

* Initially the intention was to avoid charging the trader for deliveries, but only with a tariff of 0,25 € / delivery could the (financial) performance become positive.

Economic, social & environmental impacts of UCCs

acc. BESTUFS

Economic, social and environmental impacts of UCCs

UCCs can help to:

- ▶ Reduce the number of unsuitable goods vehicles and possibly the total number of vehicles operating in the urban area
- ▶ Reduce vehicle movements and distance travelled by improving load factors and reducing empty running
- ▶ Reduce the unit cost of transport
- ▶ Improve driver utilisation

- ▶ Offer the opportunity to operate environmentally sensitive vehicles on the final leg of the urban supply chain
- ▶ Reduce the number of deliveries to city centre sites.
- ▶ Reduce fuel consumption, emissions and noise pollution.
- ▶ Make the area more pedestrian-friendly

These potential benefits have to be weighed against potential cost increases associated with the operation of the UCC.

Conclusions

UCCs are a potentially useful tool, whose main contribution is the reduction and/or more-managed vehicle traffic in areas of where significant deliveries occur on-street, and the substitution of this traffic by a fleet of clean vehicles is desired.

The main benefit is social and environmental. Since this is experienced by the city, it is the public sector who should assume the overall initiative, develop the project (with key shippers) and contribute to its financing.

Environmental impacts of lower traffic are not estimated in this study. Including and putting economic value to such benefits would clearly improve the economic case for UCCs. Without this, economic performance could only be assured if services associated with integrated street management etc., are included. Only by a pilot of at least 6 months could the behavioural changes and projected services be validated.

Thanks for your attention!

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