CITYLAB - Evaluation

CIVITAS 2020 - Evaluation Coordination Group meeting

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27 September 2017 – Torres Vedras, Portugal

CITYLAB Living Labs

- Challenges: air quality, CO2 emission free 2030, livability, accessibility, noise
- Many demonstrations, but limited lasting implementations
- A new approach required, from individual, to freight partnerships, to city logistics living labs
- Collaboration industry, local authorities and research

CITYLAB implementations

Axes for intervention	Implementation	City	Partner
Highly fragmented last-mile deliveries in city centres	Growth of consolidation and electric vehicle use	London	TNT and Gnewt Cargo
	City centre micro-hubs and clean vehicles	Amsterdam	PostNL
	Increasing load factors by utilising spare van capacity	Brussels	Procter & Gamble
Inefficient deliveries to large freight attractors and public administrations	Joint procurement and consolidation	Southampton	Meachers Global Logistics
	Common logistics functions for shopping centres	Oslo	Steen & Strøm
Urban waste, return trips and recycling	Integration of direct and reverse logistics	Rome	Poste Italiane, Meware
Logistics sprawl	Logistics hotels	Paris	SOGARIS

What do we evaluate?

- Living lab process
  - Collecting experiences and lessons learnt
  - Every six months, for each CITYLAB city
  - Will be included in CITYLAB Handbook for City Logistics Living Laboratories

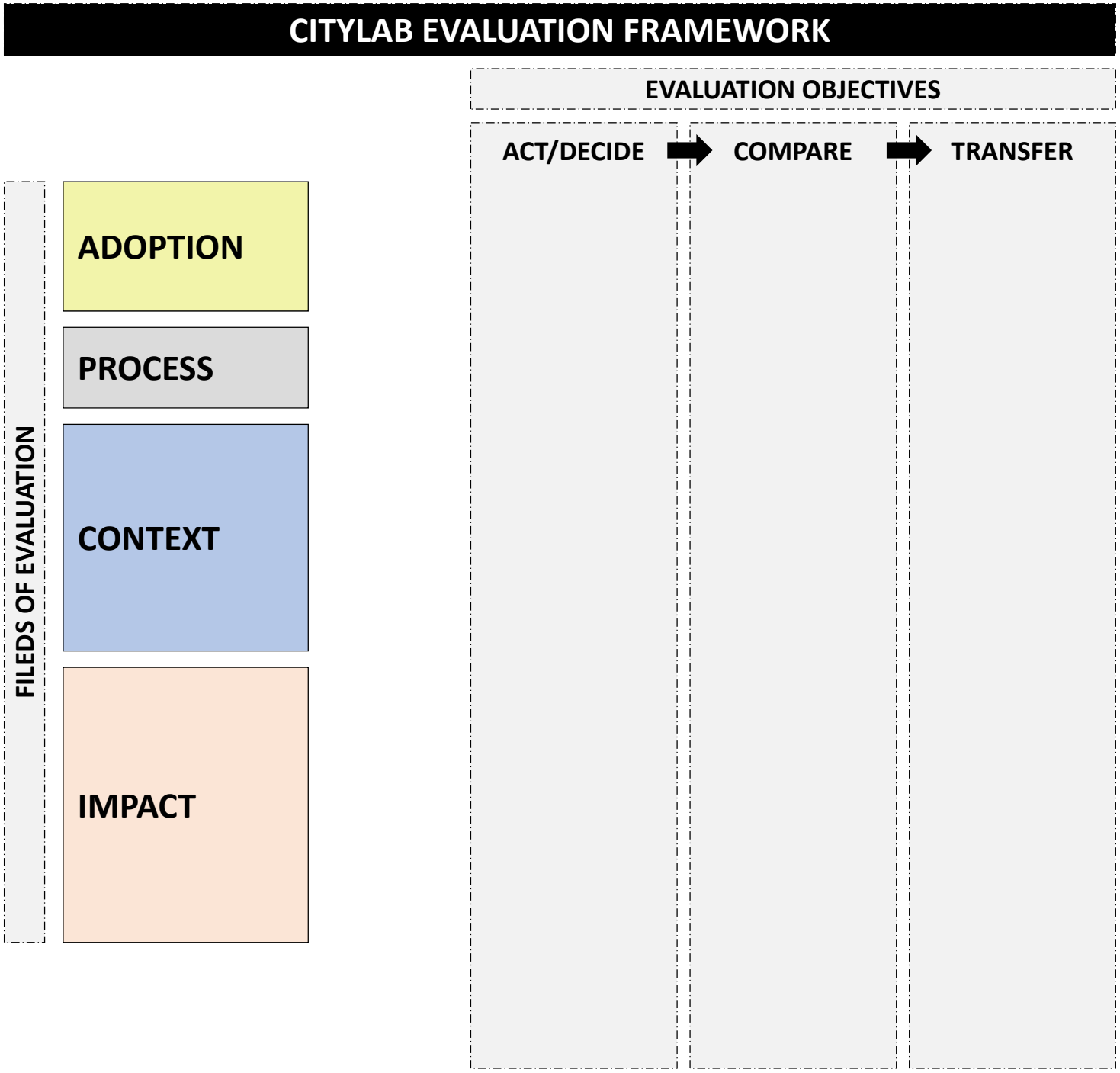
What do we evaluate?

- How well do the 7 CITYLAB implementations perform in their specific context?
  - Impact on load factors and vehicle movements
  - Economic viability
  - Costs and benefits to society

What do we evaluate?

- Could the successful ones also be successful in one or more other CITYLAB living labs?
  - Willingness to pay by users
    - Tool: analysis of behavioural response or willingness to pay by users
  - Estimate potential for up-scaling
    - Tool: (S)CBA for scaled solutions
    - Tool: Business Model Analysis
    - Tool: Multi-Actor Multi-Criteria Analysis
  - Assessment of roll-out potential
    - Tool: Transferability analysis based on TIDE methodology

CITYLAB EVALUATION FRAMEWORK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ACT/DECIDE
COMPARE
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ADOPTION
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CONTEXT
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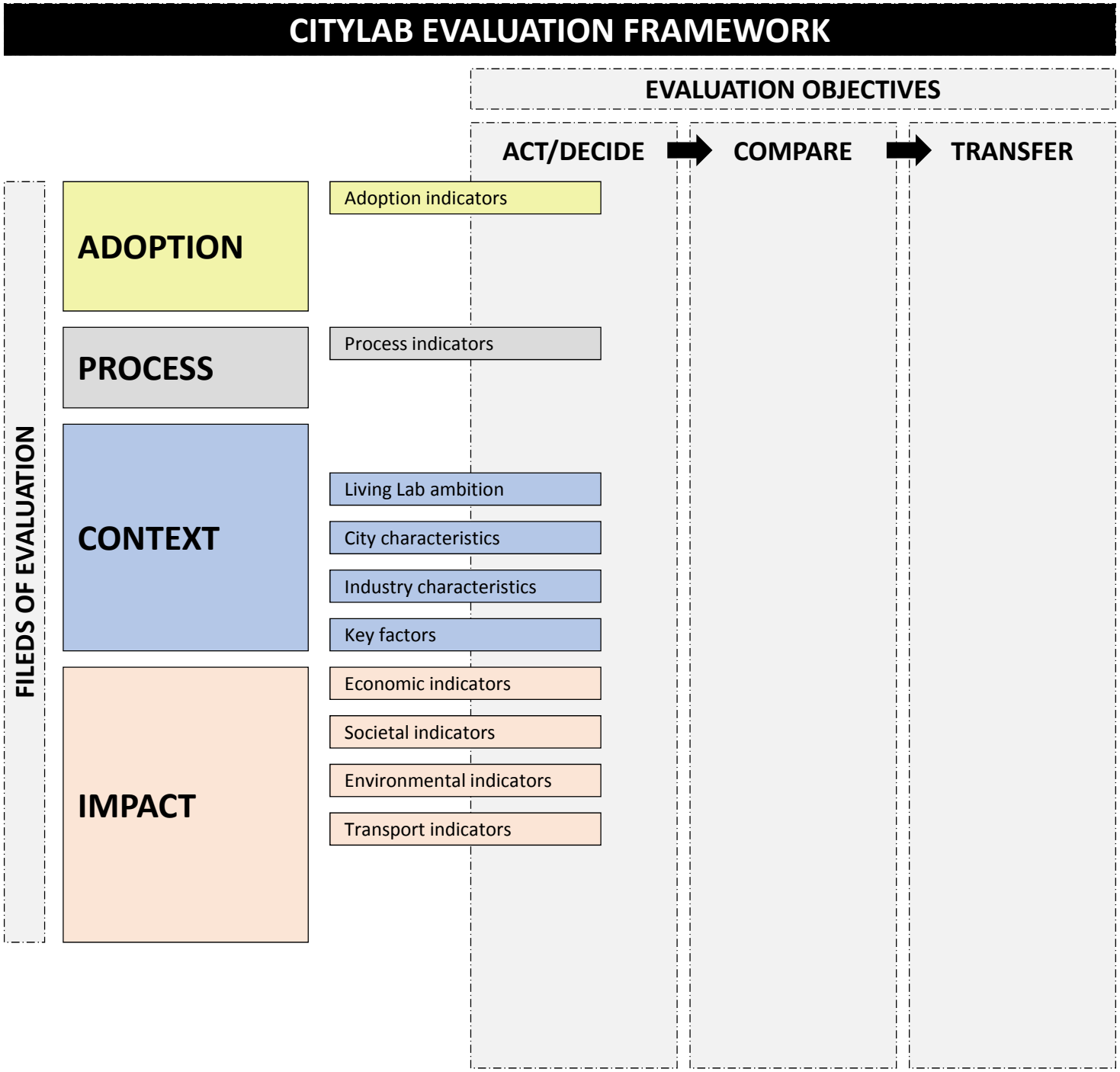
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Living Lab ambition
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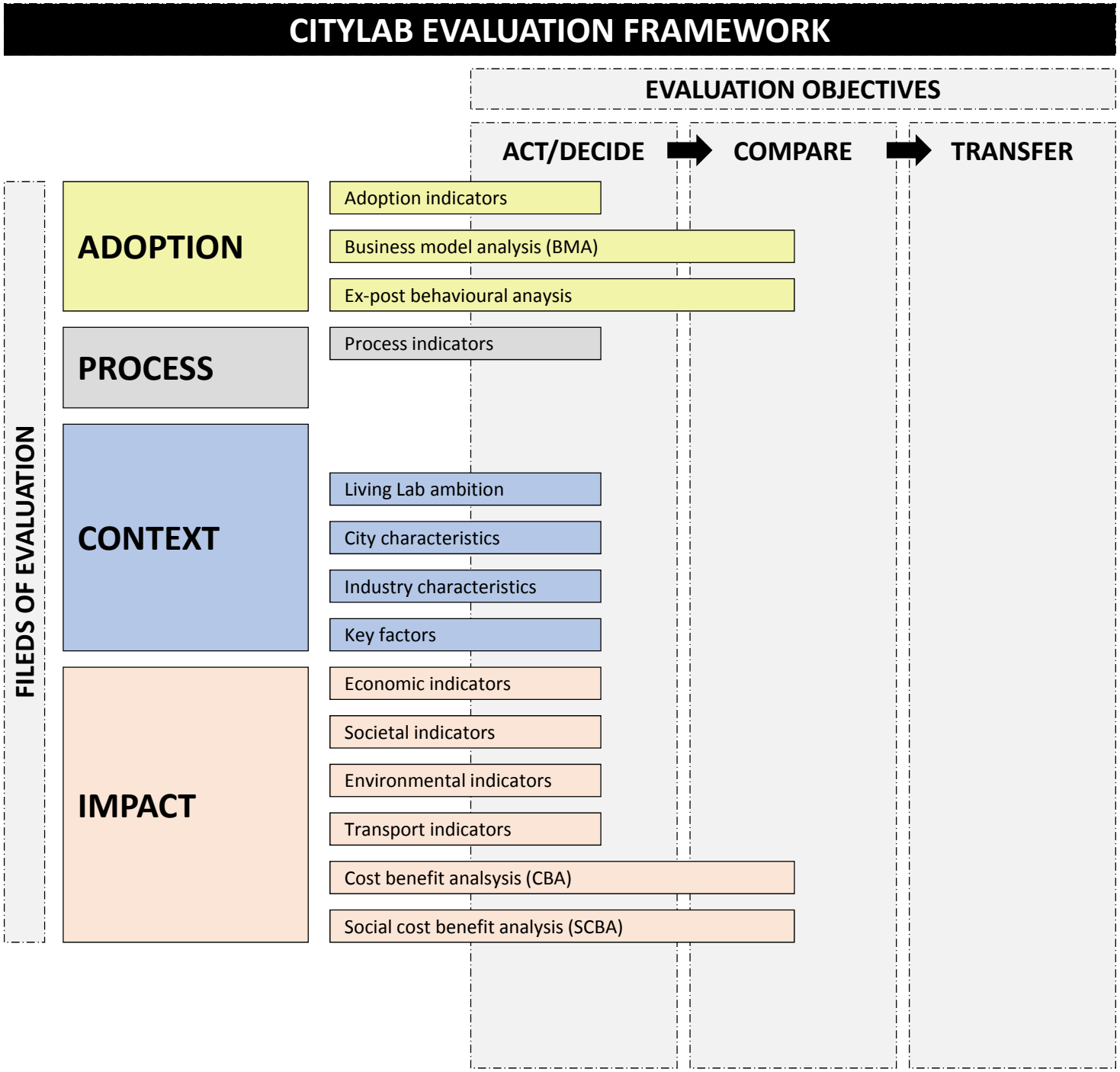
Industry characteristics
Key factors
Economic indicators
Societal indicators
Environmental indicators
Transport indicators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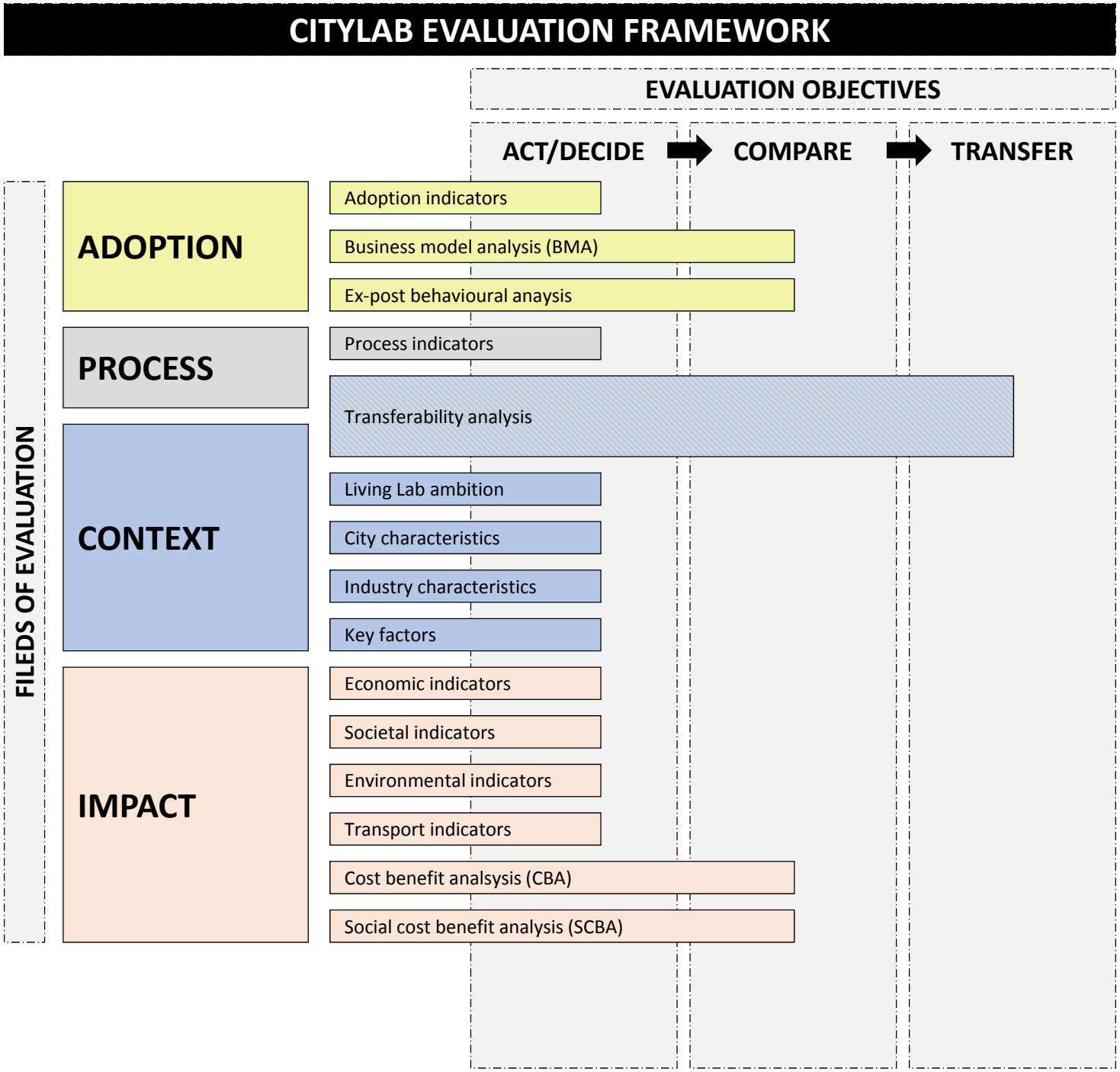
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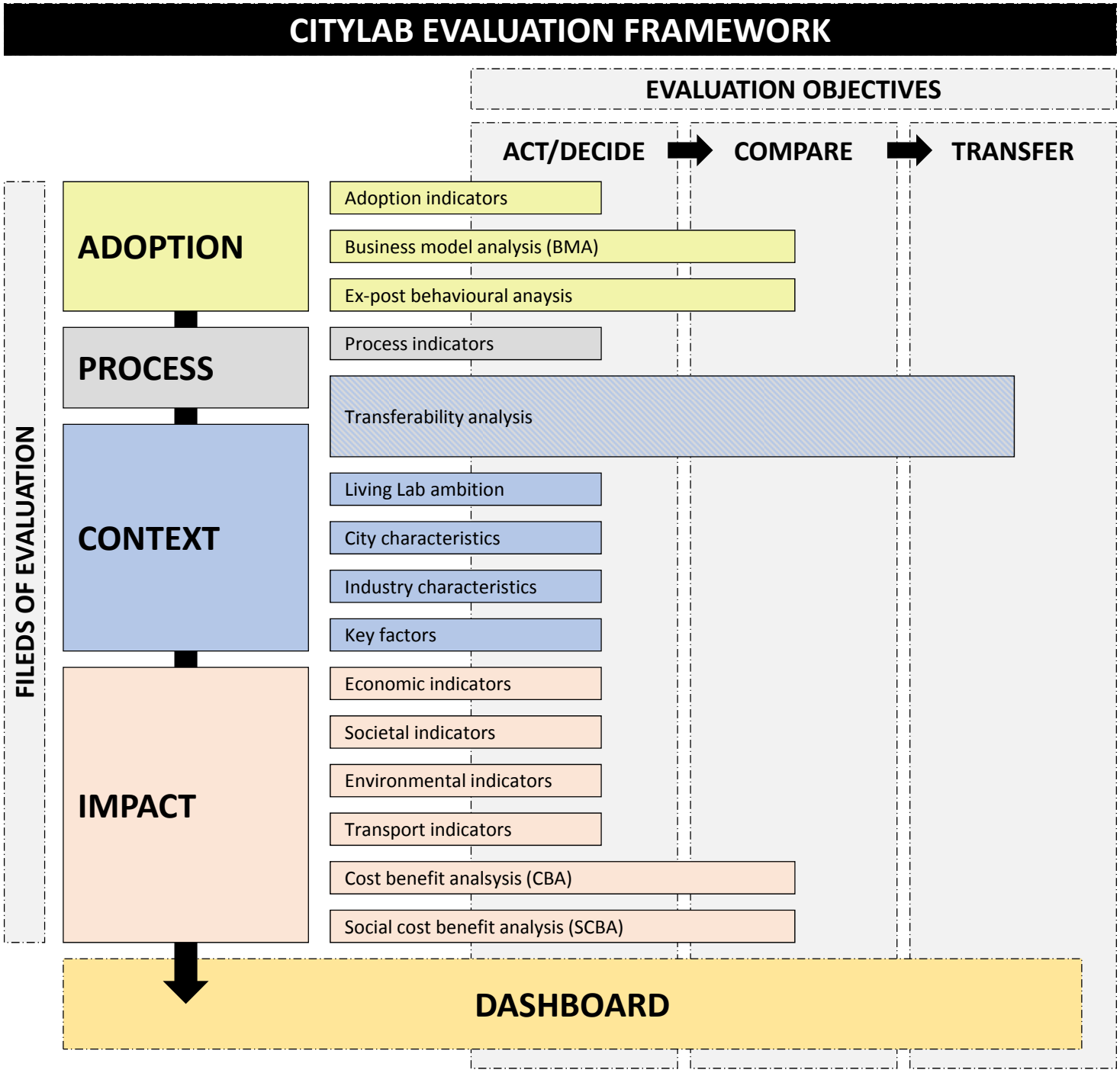
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DASHBOARD

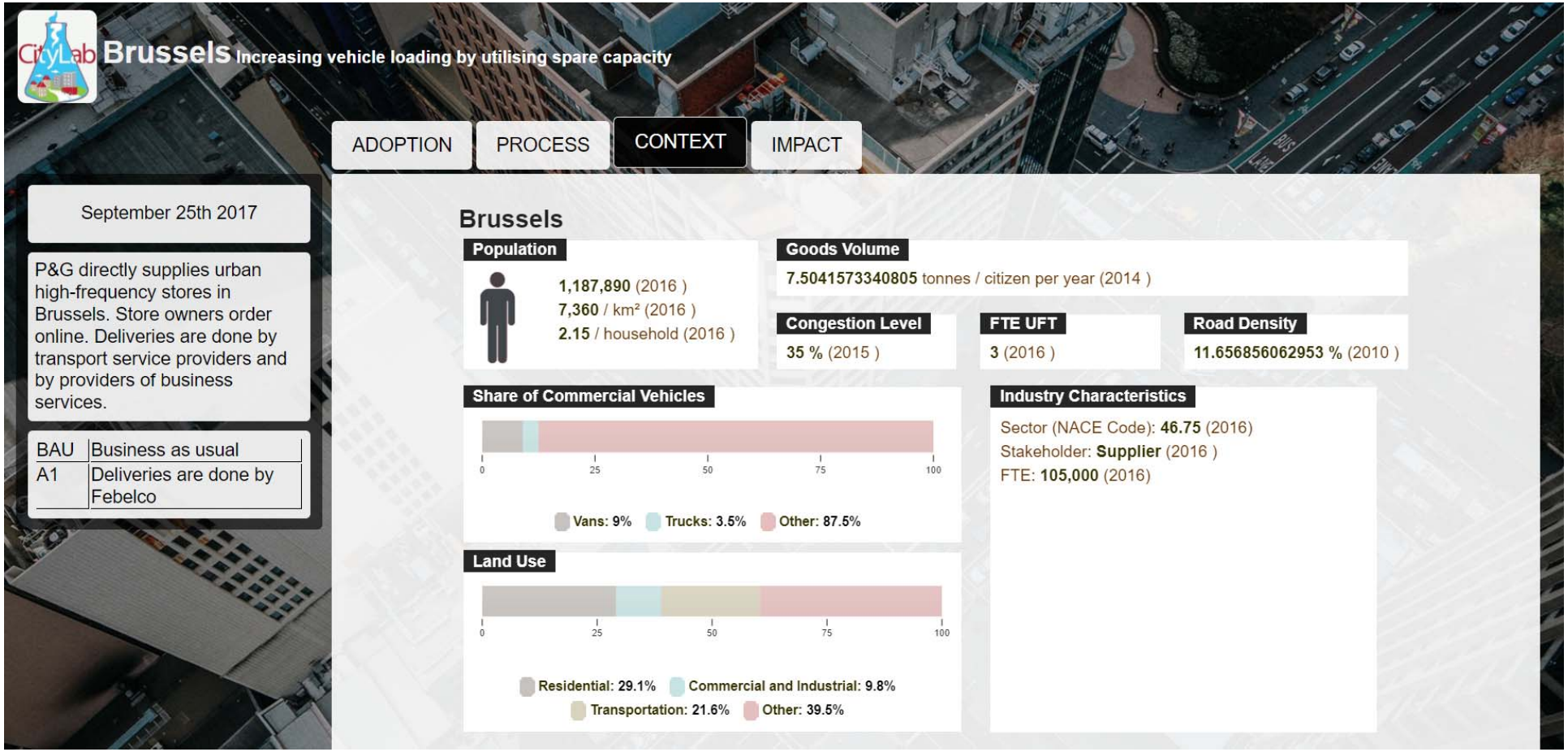
Data collection templates

Data Collection Template

Nr.	Indicator	Description	Data need per indicator	Definition	Data unit	Measurement method	Objective	Business as usual	Alternative 1	Alternative 2	Alternative 3	Alternative 4	Remark/explanation
4 - IMPACT INDICATORS													
4.1 - Environment													
			Sulphur dioxide (SO2) concentration	SO2 level is defined as the average hourly (or peak/off-peak) SO2 concentration over a full year.	µg/m3 (or ppmv, parts per million by volume)	Collected through monitoring stations, or by simulation or modelling.							Difference cannot be meas small
			Nitrogen dioxide (NO2) concentration	NO2 level is defined as the average hourly (or peak/off-peak) NO2 concentration over a full year.									Difference cannot be meas small
37	Air quality	'Air quality' is the healthiness and safety of the atmosphere which can be described by the level of pollutants in the air. The main air pollutants considered are: Sulphur dioxide (SO2), Nitrogen dioxide (NO2) and Particulate matter (PM2.5 and PM10).	Particulate matter (PM2.5 and PM10) concentration	Particulate level is defined as the average hourly (or peak/off-peak) PM10 and PM2.5 (if possible) concentration over a full year.									Difference cannot be meas small
			'Sulphur dioxide (SO2) emissions	SO2 emissions is defined as the average SO2 emissions ~~per vehicle-km~~ per shipment by vehicle type and fuel type.	gram per shipment	Several possibilities, have to be determined locally. Some examples: - Calculated on the basis of fuel / energy consumption (54) - Calculated from information on vehicle kms and emission numbers (STREAM 2011).		0.024					- Calculate from informati
									0				
			Nitrogen dioxide (NO2) emissions	NO2 emissions is defined as the average NO2 emissions ~~per vehicle-km~~ per shipment by vehicle type and fuel type.				16.15					- Calculate from informati
									0				
			Particulate matter (PM2.5 and PM10) emissions	Particulate emissions is defined as the average particulate emissions ~~per vehicle-km~~ per shipment by vehicle type and fuel type.				1.634					- Calculate from informati
									0				
38	Carbon dioxide	Carbon dioxide (CO_2) is the most significant greenhouse gas (as it contributes to about 80% of total EU greenhouse gas emissions) and is considered as one of the most important causes	CO_2 emissions	CO2 emissions is defined as the average CO2 emissions per vehicle-km by vehicle type and fuel type.				3895					- Calculate from informati
									0				
39	Noise level	The indicator 'Noise level' is used to capture the outdoor sound level caused by human activities,	Noise level	The main noise indicators for noise mapping are Lday, Levening, Lnight and Lden (day-evening-night). These are long-term averaged sound levels, determined over all the correspondent periods of a year.	dB(A)	Noise mapping using simulation tools.							Difference cannot be meas small
						Calculated on the basis of noise peak moments							Deliveries will take place c in a certain street or neigh

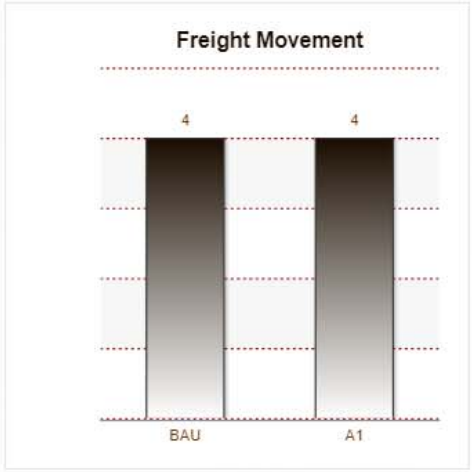
Data Collection Adoption | Data Collection Context | Data Collection Process | **Data Collection Impact**

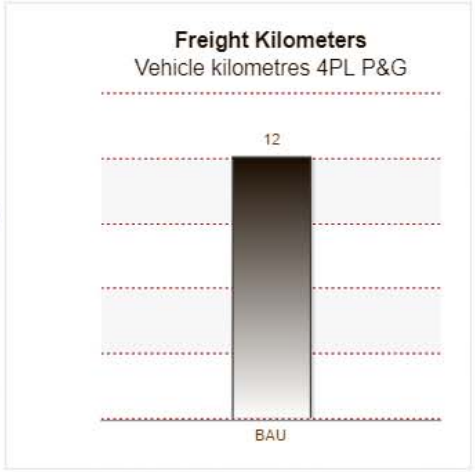
Dashboards

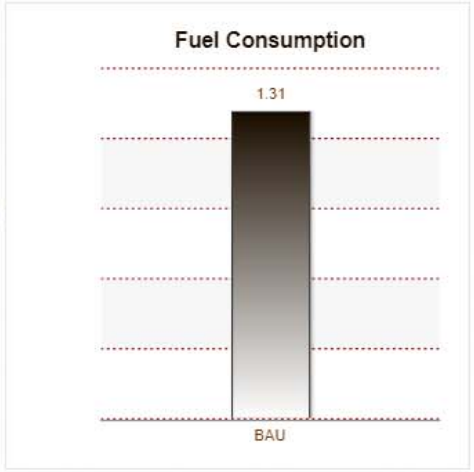

Brussels Increasing vehicle loading by utilising spare capacity
ADOPTION
PROCESS
CONTEXT
IMPACT
September 25th 2017
P&G directly supplies urban high-frequency stores in Brussels. Store owners order online. Deliveries are done by transport service providers and by providers of business services.
BAU Business as usual
A1 Deliveries are done by Febelco
Brussels
Population
1,187,890 (2016)
7,360 / km² (2016)
2.15 / household (2016)
Goods Volume
7.5041573340805 tonnes / citizen per year (2014)
Congestion Level
35 % (2015)
FTE UFT
3 (2016)
Road Density
11.656856062953 % (2010)
Share of Commercial Vehicles
0 25 50 75 100
Vans: 9%
Trucks: 3.5%
Other: 87.5%
Industry Characteristics
Sector (NACE Code): 46.75 (2016)
Stakeholder: Supplier (2016)
FTE: 105,000 (2016)
Land Use
0 25 50 75 100
Residential: 29.1%
Commercial and Industrial: 9.8%
Transportation: 21.6%
Other: 39.5%

Dashboards

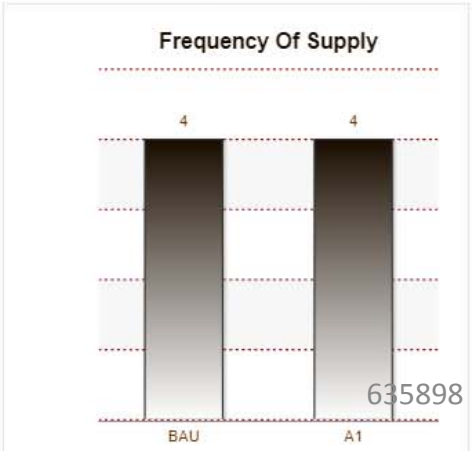
Transportation

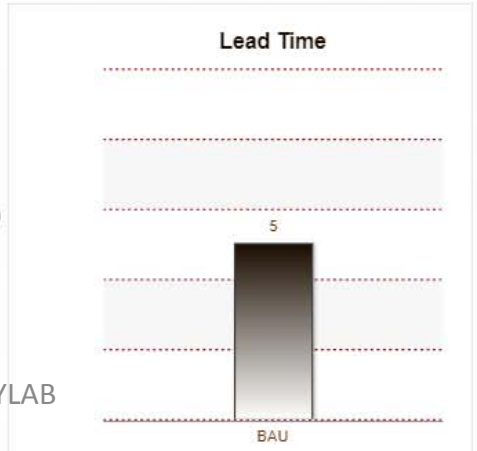






Additional Indicators



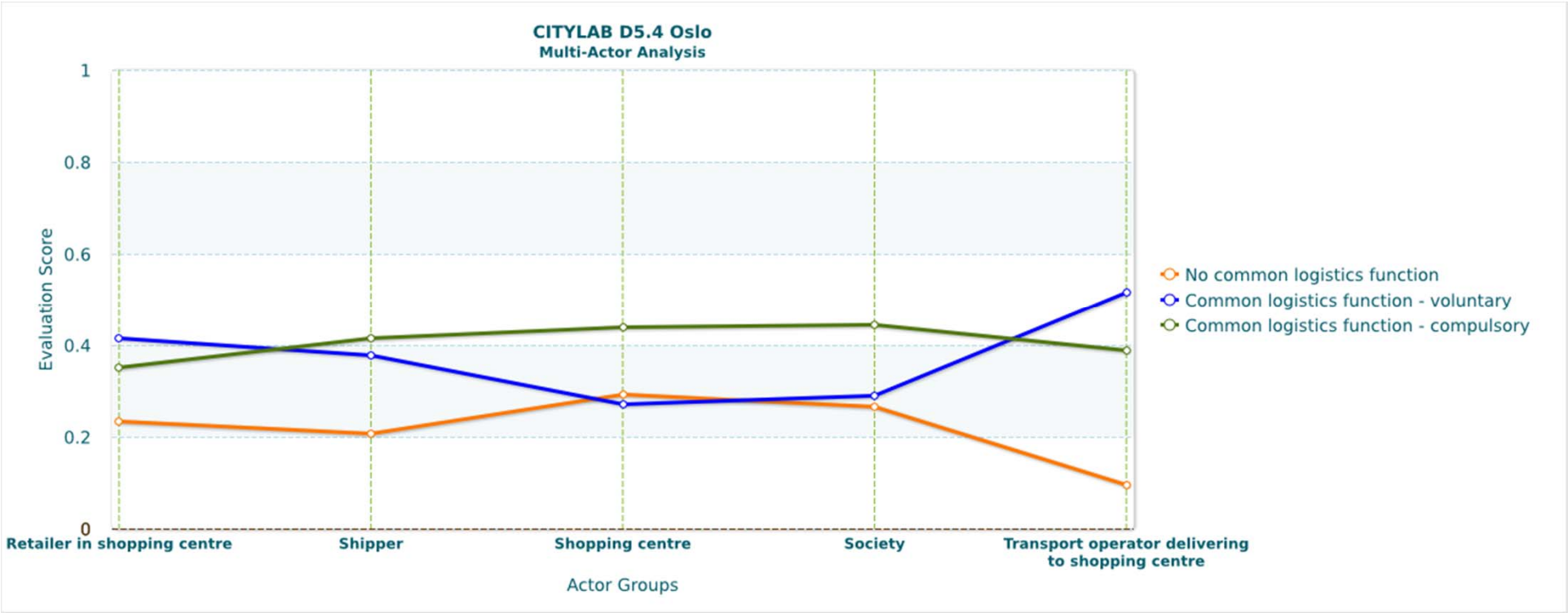


Business Model Canvas

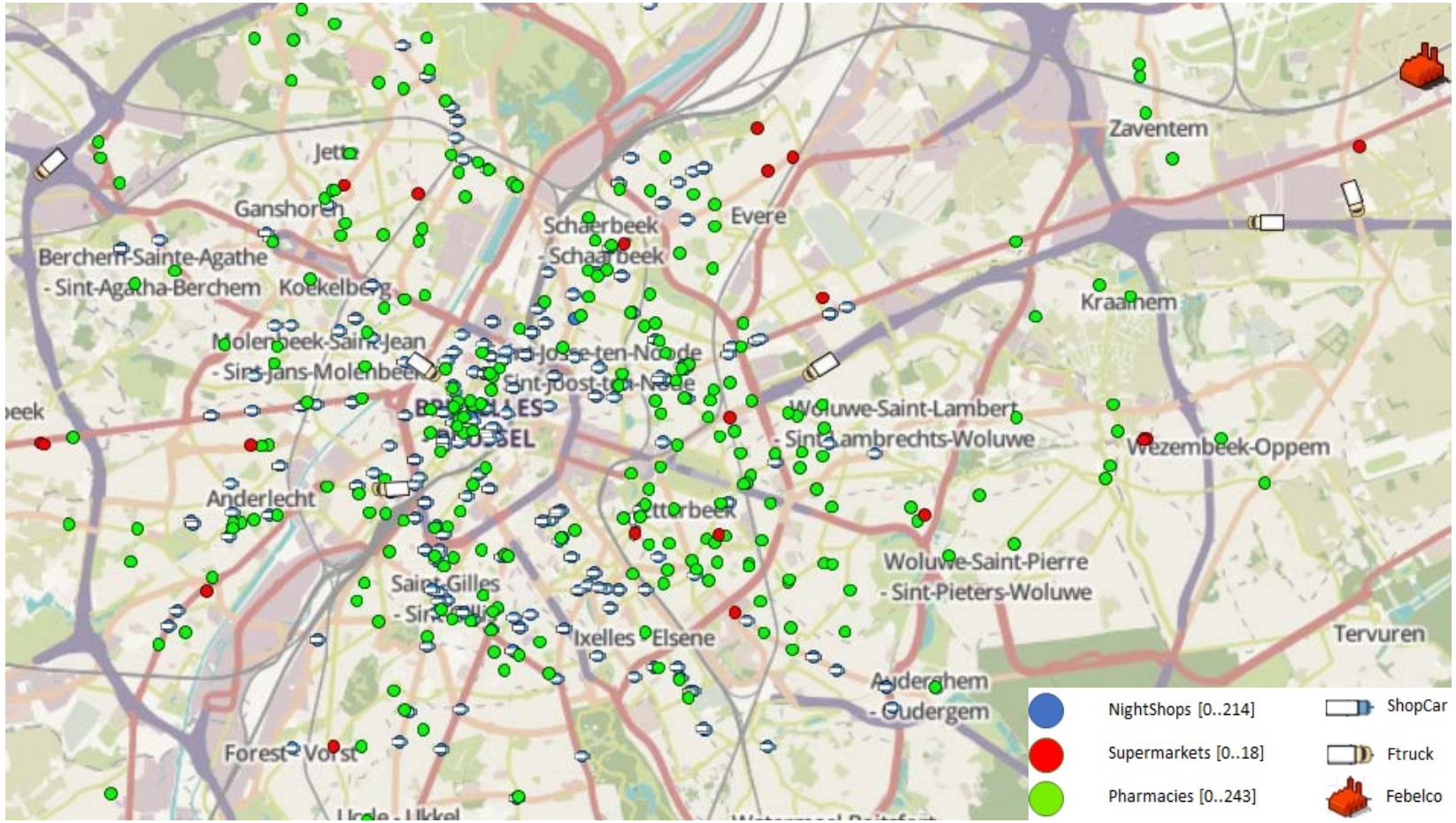
Key partners	Key activities	Value proposition	Customer relationship	Customer segments
PostNL Customers and shippers City of Amsterdam Bicycle manufacturers	PostNL has to supply the micro-hubs. This is done by trucks	PostNL is contributing to the reduction of emissions and the use of fossil fuels.	Customers and Shippers face better on time performances, less stressed PostNL employees but also face less flexibility due to the limited capacity of the bicycle	Bike Manufacturers expand their customer segment by trial and error of new electric freight bicycle models. This enables upscaling of freight bicycles outside postal services.
	Key resources PostNL has changed its resources from vans to electric freight bicycles	**Externalities** The government has the advantage of less noise, emissions and contribution to congestion.	**Channels** No change	

Cost structure	Revenue streams
PostNL has the advantage of a lower leasing price and less diesel usage. Therefore costs are saved.	PostNL faces no changes in the revenue streams.

MAMCA


CITYLAB D5.4 Oslo
Multi-Actor Analysis
Evaluation Score
1
0.8
0.6
0.4
0.2
0
Retailer in shopping centre
Shipper
Shopping centre
Society
Transport operator delivering to shopping centre
Actor Groups
No common logistics function
Common logistics function - voluntary
Common logistics function - compulsory

Impact of upscaling



Challenges data collection

- Collecting economic indicators
- Delays/changes in implementations
- Combination of qualitative and quantitative input from partners

Contact us!

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www.citylab-project.eu