GOING PLACES

Innovative Sustainability-driven Business Case

S471 – Management and Sustainable Development
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Optimizing company car fleets with a sustainable approach

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Outline
Going Places

PART 1 | Mobility challenges

PART 2 | Our innovative solution

PART 3 | Size of the potential market

PART 4 | Value creation and capture

PART 5 | Environmental impact

PART 6 | Prospects for the future

Mobility constraint | Focus on the company cars in Brussels to have the highest impact on CO2 emissions in the shortest time

PART 1

Car Emissions

2nd biggest GHG emission source (2018)

94% of cars run on petrol and diesel & only **0.7%** are electric (2021)

11.6% of cars are older than 17 years (2021)

0.92% CAGR for personal vehicles growth (2011-2021)

Company Cars

11% of country car fleet are company cars (2015)

1.1 to **1.2** occupancy rate for work commute (2020)

Historic **tax reductions** incentives drive the company car growth

Lower utilization rates because of increasing homeworking

Focus on Brussels

1.5x higher proportion of company cars than the country average

50% of the urban area is dedicated to transport infrastructure

Over 25% of driving time lost in congestion & looking for parking

New special **legislations**

CO2 is a **stock pollutant** and it is thus critical to limit the emissions as **fast** as possible

Therefore, we want to develop a solution to limit the **CO2 emissions** of **company cars** in **Brussels** to focus on the highest potential impact

Structural shift | The structural shift triggered by new legislations can be approached with a focus on sustainability

PART 1

Plan de déplacements d'entreprises (24th Jun. 2021)

Companies with more than 100 employees must develop a mobility **diagnostic** & an **action plan** to reduce their **environmental impact** and the **congestion** in Brussels.

Next in 2025

Low emissions zone (1st Jan. 2022)

A part of the Low Emission Mobility strategy is the prohibition of **diesel cars by 2030** and **petrol cars by 2035** in the Brussels-Capital region. Progressive measures are already in place.

2030 & 2035

Verdissement des voitures de société (31st Oct. 2021)

To foster electric car fleets, this new law will offer tax deduction **> 100% for charging station** until 2024, will **cut** all tax **deduction** for **petrol & diesel** cars by 2028 and offer **100%** deduction for **electric cars** until 2026.

2024 2026 2028

Three sustainability pillars to go beyond simple regulatory management for the fleet optimization:

1. Offer a **layered approach** to mobility to offer alternatives to car use
   - *STOP principle to layer mobility options*

2. Optimize the car fleet with a focus on **functional** economy
   - *Ellen MacArthur found. butterfly diagram*

3. Develop a **systemic** environmental impact **approach** for the car life cycle
   - *Life cycle emissions & end of life processing*

Solution | Tackling the fleet optimization issue in all its complexity by combining niche innovations

PART 2

Going Places is a B2B mobility solution provider that tackles 3 main sustainability challenges by integrating fragmented opportunities

1

Alternative transports

Google Maps API offers itinerary for alternative transports, and Jeasy assigns their related CO2 emissions

- ***Prioritize lower emissions alternatives to car transport and raise awareness (//2nd challenge)***

2

Maximized car use

MoboKey added on current fleet to enable digital locking and coordination through the car-sharing platform

- ***Maximize the use of the fleet through shared usage coordinated by the platform (//1st challenge)***

3

Systemic approach

Partnering up with Gocar.be second-hand car dealer to give a second life to amortized cars & Little Energy to reuse the car batteries at the end of life (Gate-to-cradle)

- ***Impact over the whole life cycle (//3rd challenge)***

Sizing | 35K company cars can be addressed by our solution, among which 25% could be replaced by alternative transports

PART 3

1. Size of the car fleet addressed:

650 K company cars in Belgium

*> 11% * 5.9Mn individual cars in Belgium*

81 K company cars in Brussels

*> 8,3% of cars for Brussels * 1.5 overrepresentation factor*

35 K cars from companies bound by the Plan de Déplacements d'Entreprises

> 43% affected by PDE

2. Proportion that could be replaced with alternative transport:

		Public transport accessibility		
		Perfect	Good	Average
Residence	BXL City	18%	10%	6%
	BXL Region	9%	5%	4%
	BXL Periphery	14%	5%	4%
	Rest	17%	6%	4%

	Access		Cars %		Switch
BXL City	34%	*	32%	=	10,9%
BXL Region	13%	*	54%	=	7,1%
BXL Periphery	19%	*	35%	=	6,7%

➢ **Alternatives to consider:**

		Avg. Commute	Alternative
Residence	BXL City	4 km	Bike (all)
	BXL Region	12 km	STIB ( )
	BXL Periphery	27 km	Train ( )

Car fleet reduction | Transport alternatives and shared car fleet enable a 61.6% fleet reduction

IMPACT ON THE CAR FLEET

1) Regulation Risk Management

Thanks to our solution, the company can greatly reduce both its **emission** levels and the size of the fleet, thereby limiting the **congestion** in Brussels and achieving both goals of the **PDE regulation.**

2) Fleet reduction thanks to alternative transport solutions (Google Maps API & Jeasy)

As developed in the previous slide, a proportion of the **modal share** of cars can be replaced with **alternative** transports.

	Total with access		Modal share of cars		Switch	(To)		Total fleet		Reduction	
Brussels	34%	*	32%	>	10,9%	(Bicycle)	*	35 K	=	**3.815**	8.645
Periphery	13%	*	54%	>	7,1%	(STIB)	*	35 K	=	**2.485**	
RER area	19%	*	35%	>	6,7%	(Train)	*	35 K	=	**2.345**	

3) Fleet reduction thanks to car-sharing platform and technology (MoboKey)

For the 75% remaining of the fleet (26,4K cars), MoboKey enables car-sharing, thereby boosting the utilization rate from:

5% for individual cars (Barter 2013)
to:
9.8% for shared cars (González et al. 2021)

Thereby maximizing the fleet usage and enabling to reduce the fleet by 49%.

>

Total car fleet	35.000
Reduction through alternatives	8.645 (see above)
Optimized car fleet 1	26.355 (35 K - 8.645)
Reduction from shared fleet	12.908 (49% opt. 1)
Optimized car fleet 2	**13.446 (38.4%)**

Value capture | 810 K€ created by implementing 'Going Places' at cost price can be shared with the clients

PART 4

Upper bound price = reduction in the car fleet expenditures

a. Electric car TCO (first owner bought in 2025 according to BEUC, 2021)	33.200 €
b. Reduction of fleet (alternatives + car sharing)	8.645 + 12.908 cars
c. Companies in Brussels (Submitted to PDE)	579 companies
Average possible cost cutting per company (a*b/c)	**1.235,9 K €**

Lower bound price: cost price (no markup)

a. Optimized car fleet after the two reductions	13.446 cars
b. MoboKey installation costs per car	190 €
c. Google Maps API & Jeasy per car (over 4 years)	124 € (10 trips/day)
d. Alternative transports packages	8.645 cars
e. Average mobility budget compensation (4 years)	19.500 €
f. Labour percentage of cost for services (% of total)	30%
g. Companies in Brussels (Submitted to PDE)	579 companies
Total cost of the solution per company [(a*(b+c)+d*e) * 1/(1-f)] / g	**426,3 K €**

810 K € value creation

With total savings of 1.236 K € for a cost of 426 K €, there is 810 K € of **value created** that can be **shared** between the client and Going Places.

Value capture mechanisms:

- **Flat rate**: fixed price covering the installation, maintenance and services for each car
- **Pay per use**: charge by kilometer driven including the whole services enabling the solution
- **Subscription pricing**: monthly fee for the whole car fleet to benefit from the whole service package

+ Employee benefits

- More **flexibility** to choose the most **adequate transport**
- **Alignment** with personal **values** and vision
- **Financial** mobility budget **compensation**

CO2 emissions| 74 TCO2eq emission reduction per day achievable with alternative transports, car sharing and electricity sourcing

PART 5

Forced transition by Low Emission Mobility (No diesel cars by 2030 and no petrol cars by 2035)

There is a forced transition to electric cars in the next decade: 35.000 cars $\times$ 43 km daily on avg. $\times$ $(240 - 85)$ life cycle gCO2eq/km differential between diesel or petrol and electric (BE) cars $=$ **233 TCO2eq/day** reduction

Additional emissions reductions

1) Layered Mobility

Google Maps' alternative itineraries and emission accounting through Jeasy can encourage to switch from cars to more sustainable alternatives (see part 3)

a) Bikes (LCA emissions):
10.9% * 35K * 43km * (85-21)gCO2eq/km
= **10.5 TCO2eq/day** reduction

b) Metro & Tram (No LCA available):
7.1% * 35K * 43km *(53-35)gCO2eq/km
= **1.92 TCO2eq/day** reduction

c) Train (No LCA available):
6.7% * 35K * 43km *(53-41)gCO2eq/km
= **1.21 TCO2eq/day** reduction

2) Shared Vehicles

Out of the remaining 75% of the fleet (26,4K cars) with no alternatives, MoboKey enables car sharing (part 2)

a) Utilization rate difference:
Utilization rate from 5% to 9.8%

b) Kilometer driven assumption:
We assume no carpooling but only car sharing so still 26.4K*43km = 1,135,200km

c) Split production emissions:
Higher usage, so battery and car production emissions are spread over more km:
1.1 Mn km * 48gCO2eq *(1-5%/9.8%)
= **26.7 TCO2eq/day** reduction

3) Control over sourcing

Shared electric car fleet and financial incentives for charging stations (part 1) will enable companies to control the charging

a) Variation of life cycle emissions:
Electric car life cycle emissions vary in function of the electricity sourcing

180g/km	110g/km	85g/km	55g/km

b) Best practice benchmark:
Assuming the company invests to source electricity similar to EU best practices:
1.1 Mn km * (85-55)gCO2eq
= **34.1 TCO2eq/day** reduction

Gate-to-Cradle | Second-hand market and battery recycling reduce the ecological impact of the company car fleet after disposal

PART 5

GOING PLACES
Revolutionising mobility

Implication of our solution

2x Utilization rate
→ Faster amortization & car replacement

The good point

New models and technologies are constantly in the fleet of cars
→ Most **efficient engine** consumption

The bad point

Large number of cars are **disposed** off and can potentially create waste

How do we cope with frequent fleet **replacement** without creating so much **waste**?

SOLUTIONS

Second-hand market

Gocar.be

In Europe, the used car market was valued at 410 billion in 2020 and is expected to **grow** at a rate of 3-4% per year in the coming years. So, there should be a **demand** for the **amortized** cars that are only a few years old.

&

Recycling of electric car batteries

Little Energy

There are already companies that have developed a solution for energy storage from the **revaluation** of electric car **batteries**. For example, Little Energy creates **battery-packs** from these wastes.

Growth | The four major challenges to a successful implementation can be tackled with our solution backed by leadership

The solution implementation will **not** require major **infractructure** investments because the MoboKey is a **module** that can be installed on existing vehicles. The main challenge will be to develop more complex **accounting systems** to handle the mobility budget allocation among the different alternatives to give the right financial incentives.

As stated previously, the main obstacle to buying electric cars concerns the **range** and **autonomy**. Additionally, there will be **peak demand** periods (for example holidays). To handle these challenges, Going Places should partner up with a **car booking** company such as Cambio and thereby ensure **sufficient capacity** anytime of the year.

A shared car fleet can only work if the employees are **willing** and **able** to coordinate. The shared mobility **platform** and app offered by MoboKey will be reinforced with the alternative transport information (Maps & Jeasy) to provide **coordination**. The **willingness** to coordinate will have to be reinforced through company **leadership** and mobility budget incentives.

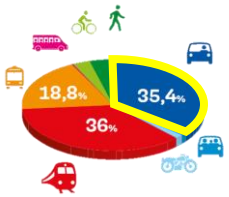
Alternative transports options and shared car fleet solutions will add a layer of **complexity** to a regular individual car fleet. This complexity can be managed through solid **financial accounting** capabilities and a **platform** enabling coordination. However, its success will mostly depend on the **leadership backing** and **communication.**

Growth | Utilization rate and car modal share to keep track of intra-company success and bigger markets to address

PART 6

1. Internal performance tracking (clients)

After implementing our solution, we should define two major **Key Performance Indicators** to enable the **companies** to track their progress.



From 35.4% to …%

Modal share of the car

The first KPI aims at assessing to what extent the **alternative transport** options are being used. The **greater** their **use**, the **smaller** the **modal share** of the car should be (35.4% of home-work commute in 2014).

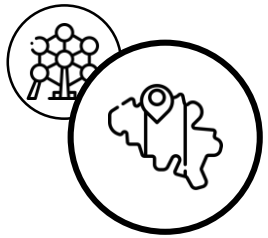
From 5% to …%

Utilization rate of the car

The second KPI will track the utilization rate of the **shared electric vehicles** to see whether the solution is **convenient** enough and sufficiently **backed** by the leadership to **maximize** the **use** of the infrastructure (//functional economy).

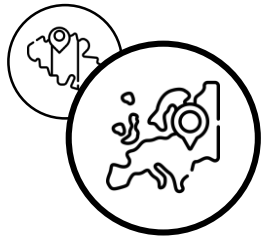
2. Going beyond Brussels (Going Places)

Brussels lies at the heart of **Europe**. Therefore, if the **pilot** project in Brussels helps significantly reducing the mobility issue, it could be an **example** for larger markets.



National expansion

If we stop focusing only on companies subjected to the PDE (35K), the solution could be applicable for the **81K** company cars in **Brussels** and the **650K** company cars throughout **Belgium.**



European expansion

Belgium only represents **2.4%** of the European passenger car **fleet** and comes **15th** in the **motorization rate** (511 cars/1000 inhabitants). The solution could be extended to countries with more cars per inhabitant, older cars and higher absolute passenger car fleet.

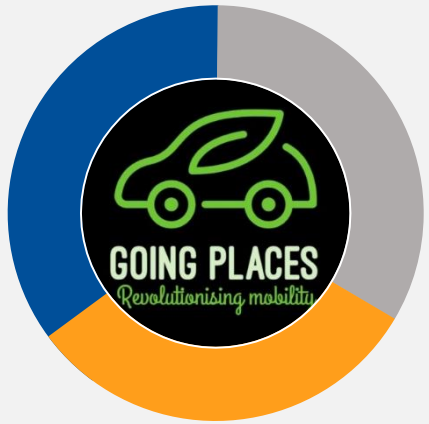
Take-away | Our innovative solution one-pager summary

ANNEXES

35K company **cars** submitted to PDE in Brussels

New **legislations** to transition to electric vehicles

25% of the car **modal share** could be replaced with alternatives



Alternative transport options
→ Layered mobility approach

Shared electric vehicle fleet
→ Functional economy

Control over the life cycle
→ Energy sourcing
→ Second-hand and batteries

21.5K company cars **reduction** through 2 optimization waves

810K € value creation per company submitted to the PDE

74 TC02eq emission reduction **per day** through a triple action

Sources

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