BESTMILE
THE MISSING LINK

FLEET OPTIMIZATION PLATFORM FOR AUTONOMOUS VEHICLES

GeoSummit

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ALREADY A REALITY:

AUTONOMOUS BUSES

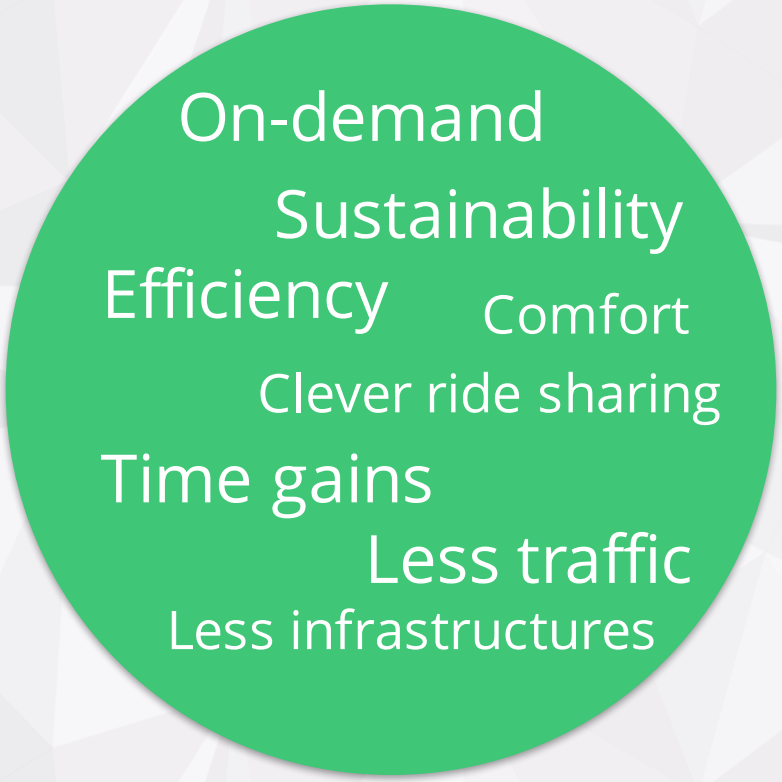
IT'S COMING REALLY SOON:

AUTONOMOUS CARS

Autonomous mobility promises

Provided by the autonomous vehicle

Thanks to its numerous sensors, it won't have an accident. And you can work while being driven.

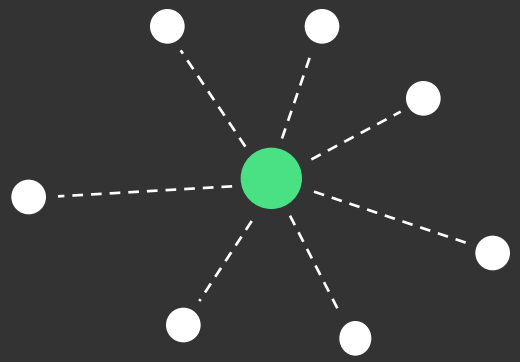


Who brings that?

As vehicles are not able to organize themselves.

The future of mobility reside in the ability to “connect” individualistic “robots” in order to optimize transport as a whole.

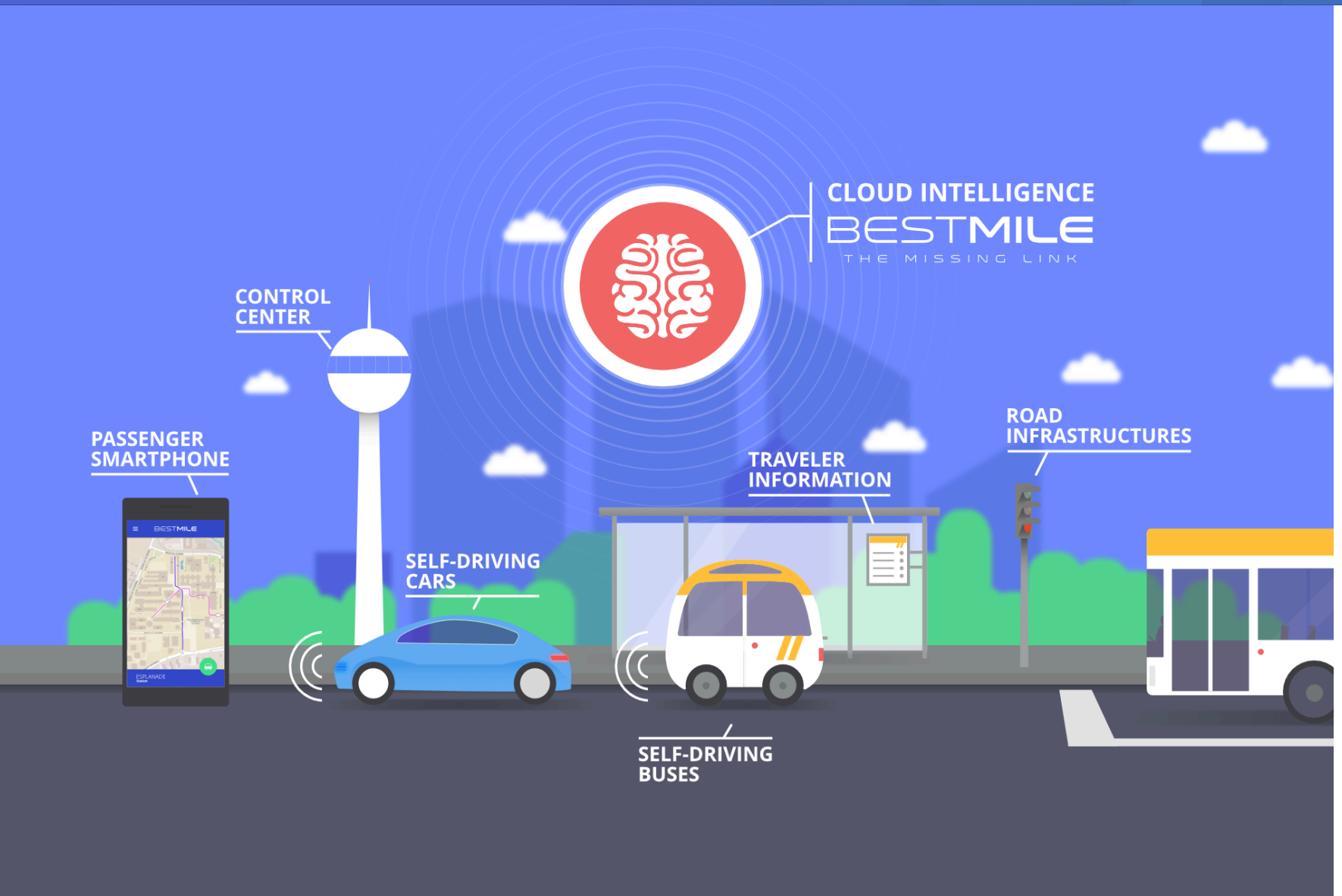
The future of mobility isn't in autonomous vehicles but in what they can offer once they're operated and managed altogether.



- We need a centralized intelligence
- Dispatching each vehicle in an optimized way
- Working with every autonomous vehicles on the road

BESTMILE CLOUD PLATFORM

The B2B2C solution for autonomous mobility



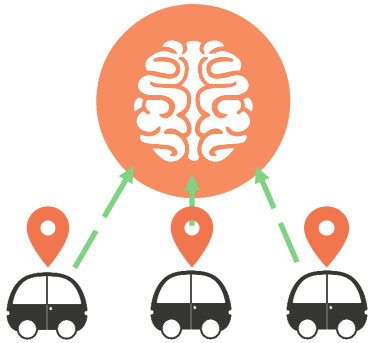
“Without the control tower, a fleet of airplanes cannot be operated, even if equipped with autopilot.”

BESTMILE PRODUCT

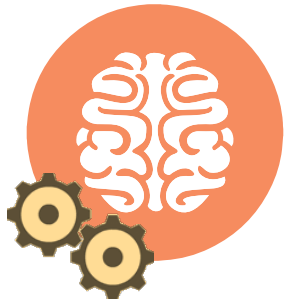
A unique B2B2C solution for autonomous fleets

1. Get real-time demand and / or schedule to follow

2. VEHICLES SEND DATA TO THE PLATFORM

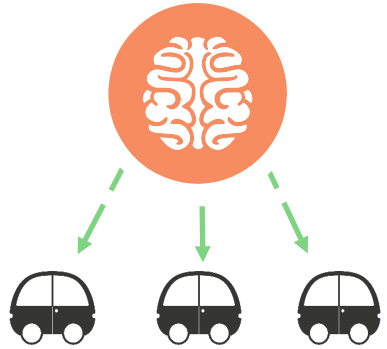


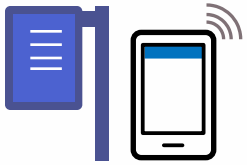
3. OPTIMIZE THE SYSTEM



4. TRANSLATE TO MISSIONS

5. SEND MISSIONS



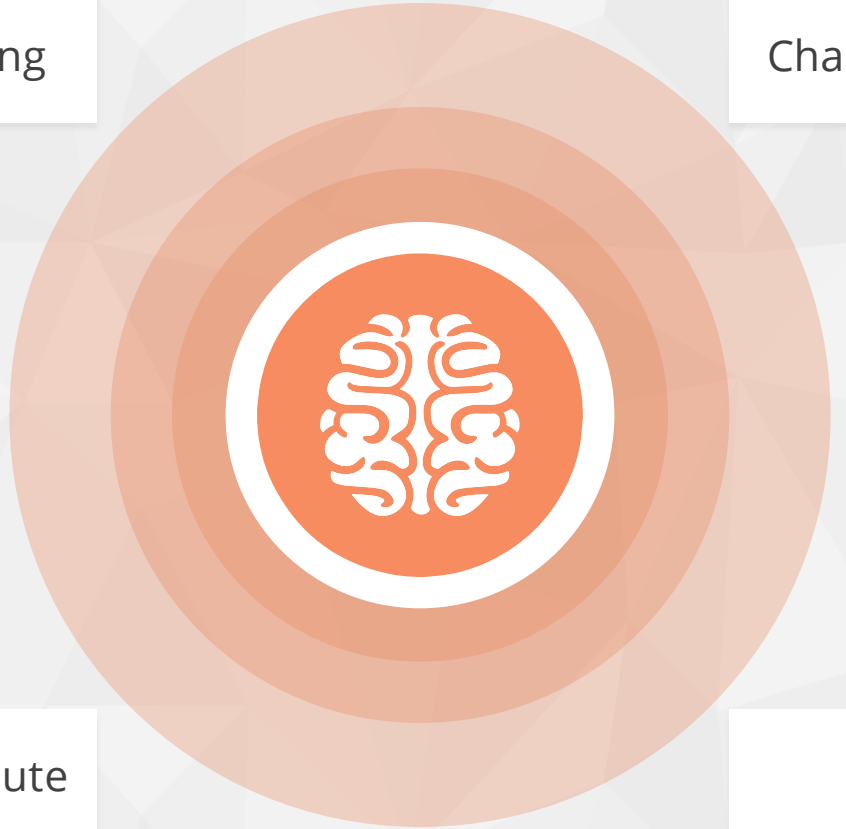


6. Provide relevant information to passengers, in real-time

BESTMILE ENGINE

Innovative technology

- Real-time dispatching
- Charging management
- HD Optimized routing
- Network state forecast
- Flexible timetable/route
- Data analytics

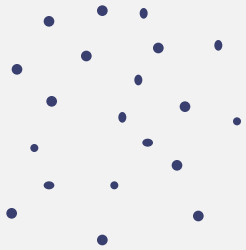


THE MORE THE SYSTEM IS USED, THE SMARTER IT GETS

TECHNOLOGY

The magic behind

A "SIMPLE" PROBLEM



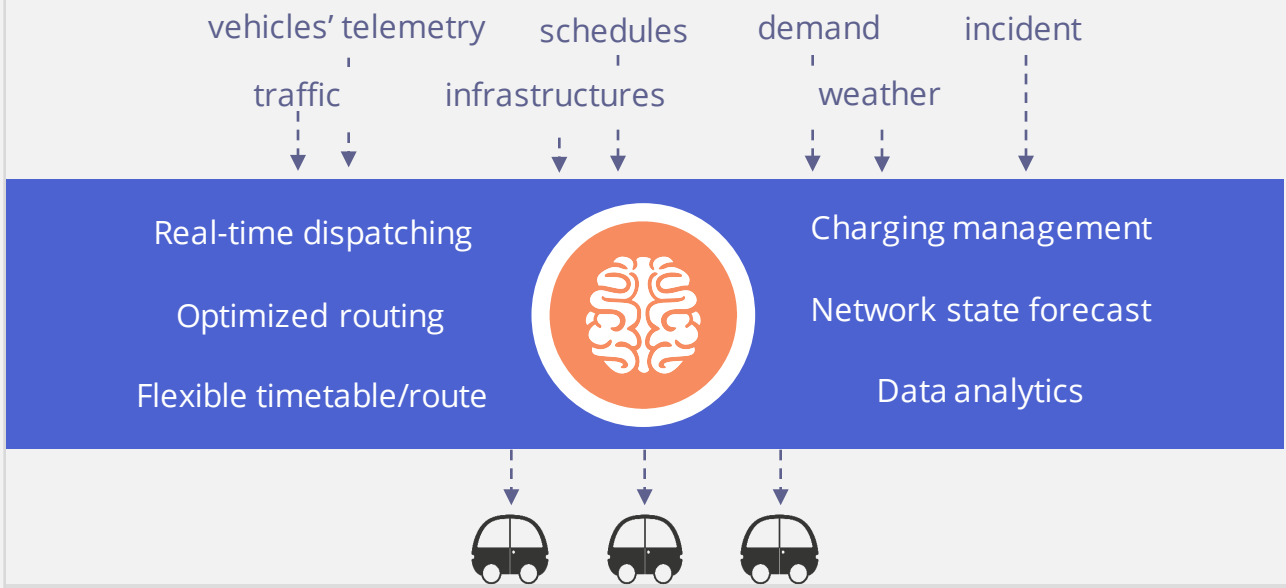
Find the shortest path that connects those 20 dots.

Let's say that computing one possible path takes only 1 microsecond.

Simple?

If you tried every possible combination to find the best one, **it would take you 1927 years! That's not really "real-time".**

BESTMILE'S COMPLEX PROBLEM



COMPARED TO EXISTING TECHNOLOGIES

Mainstream answer: near-optimal solutions such as Heuristic or Metaheuristic and algorithms limited to door to door routes (e.g. Uber).

Our answer: use system design and new data science to re-design current state-of-the-art algorithms.

This would make BestMile the first company to provide fully automated routing and scheduling for autonomous vehicles.

R&D PARTNERSHIP

BACKED BY ONE OF THE WORLD'S TOP UNIVERSITIES

ÉCOLE POLYTECHNIQUE FÉDÉRALE DE LAUSANNE

2 year CTI project
1 million CHF (500'000 CHF from state)
3 EPFL research scientists involved

PROF. NIKOLAS GEROLIMINIS

- MSc and Ph.D. in civil engineering, University of California
- Transportation Research Board's Traffic Flow Theory Committee
- "Transportation Student of the Year"
- "Outstanding Graduate Student Instructor Award"

- Network-based planning algorithm
- Dynamic routing
- On-demand optimization
- Level of-demand
- Disruption management

RESULTS

- Complex algorithms for **large scale fleets**
- Exclusive **license for BestMile**
- **Patentable outcomes**

Academic collaborations in North America are in discussion

HERMES PROTOCOL

HOW WE COMMUNICATE WITH THE VEHICLES

Our platform →

Hermes protocol →

Autonomous vehicles →

First protocol that allows a platform to

SEND COMMANDS TO AUTONOMOUS VEHICLES AND GET BACK DATA

It's so great we would like to make it a standard

SO WE OPENSOURCED IT

(WE'LL COMMUNICATE ABOUT THAT SOON)

It's already used by all autonomous buses manufacturer on the market...

... and big car manufacturers are also interested.

3D Model of the World

BESTMILE
THE MISSING LINK

OUR TALENTED TEAM

20 people from 10 countries

Raphaël Gindrat
CEO & Co-founder
Transportation Engineer
from EPFL

Anne Koymans
CSO & Co-founder
Transportation Engineer
from EPFL, urban planner

+ HR & 2 Management Interns

R&D TEAM

Front-end developers
Back-end developers
DevOps engineers
Interns

Aloïs Cochard
CTO

Nikolas Geroliminis
EPFL Professor

+ 2 mathematicians

Michaël Thémans
Strategic Business Dev.

Marco Brienza
Sales representative

Mikaël Vaivre
Product Manager

Leemor Chandally
Strategic Partnerships,
North America

BESTMILE
THE MISSING LINK

WE'RE STARTING WITH
AUTONOMOUS BUSES
FOR PUBLIC TRANSPORTATION

AUTONOMOUS BUSES

Public transportation

For private sites and cities

AUTONOMOUS BUSES

The goal: to sign a partnership with every player in the market.

CONFIRMED PARTNERSHIPS

navya

LOCAL MOTORS

Auro Robotics

THE HI-TECHROBOTICSYSTEMZ LTD.
EVOLUTION THROUGH INNOVATION

TECHNICAL COMPATIBILITY

EASYMILE

OTHER PLAYERS COMING...

PIT Group

YAHOO! JAPAN

Robot Taxi

PARTNERS AND CONTACTS

All over the world

SUMMER
2014

CATS

European project

4 OPERATION WEEKS	**3** VEHICLES	**+1500** PASSENGERS	**PROTOTYPE** VEHICLES

navya

SUMMER
2015

CityMobil2 - Switzerland

European project

100%
FULL AVAILABILITY

3315 HOURS
10’000 KILOMETERS
6881 PASSENGERS

6 VEHICLES
6 MONTHS

ON DEMAND
WITH SMARTPHONE APP

EASY MILE

october
2015

ITS Bordeaux

Commercial launch

NAVYA Arma
NEW VEHICLE

IN TRAFFIC
PUBLIC SITE

HERMES
OUR NEW GENERIC PROTOCOL

4 DAYS
1500 PASSENGERS

navya

2016 - 2017

«SmartShuttle» project

POSTBUS
SWITZERLAND'S MAIN PUBLIC TRANSPORT OPERATOR

2 NAVYA Arma
NEW VEHICLE

2 YEARS
OPEN TO EVERYONE IN SION, SWITZERLAND

IN TRAFFIC
PUBLIC SITE

navya

2016 -
...

Civaux nuclear power plant

PRIVATE SITE
Service for employees

6 NAVYA Arma

INDEFINITE TERM
Start with a 5 years contract

NIGHT OPERATIONS

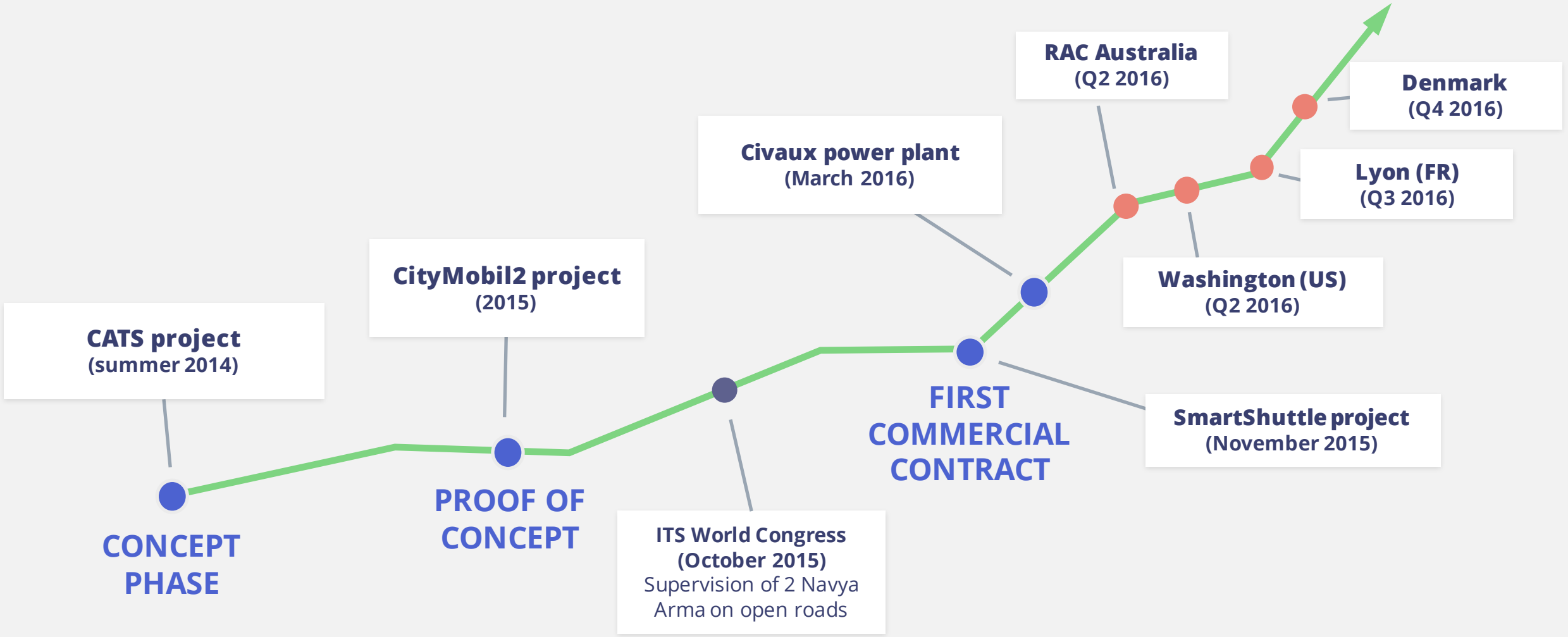
navya

WE GOT OFF TO A GOOD START!

Exciting sprint towards profitability

BESTMILE

6/8/16



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THEN WE'LL CONTINUE WITH AUTONOMOUS CARS FOR SMART TRANSPORTATION

AUTONOMOUS CARS

Extended valet parking

Clever car sharing

Taxi services

EXTENDED VALET PARKING

Intelligent and hardware agnostic

BESTMILE

6/8/16

Huge time gains for car owners

Just leave the car, and let the BestMile platform park it.

Possibility to reduce parking size

Optimizing the parking strategy means that less space is needed.

Bring vehicle to exit, right on time

Users can call their vehicle back with just a touch in the dedicated mobile app.

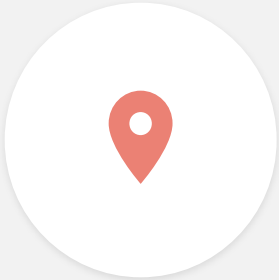
The mobile app is rebranded to match our client's colors, or it's possible to use our API to feed an existing app.

CLEVER CAR SHARING

Solving the main problem

BESTMILE

6/8/16



Finally solving the rebalancing problem

The BestMile platform automatically drives the vehicles where they will be needed

Hardware agnostic

We aim a full compatibility with the diverse autonomous vehicles on the market

RESPONSIBILITIES

Of course, BestMile is not responsible for the booking management. The car sharing platform is.

BestMile focuses on providing the missing technology bricks to automatically drive the vehicles in order to achieve an optimal rebalancing along the day.

TAXI SERVICES

Comfort and efficiency

BESTMILE

6/8/16

Optimal management of driverless fleets

We bring the right vehicle to the right place in the right time

Hardware agnostic

We aim a full compatibility with the diverse autonomous vehicles on the market

Full operational flexibility

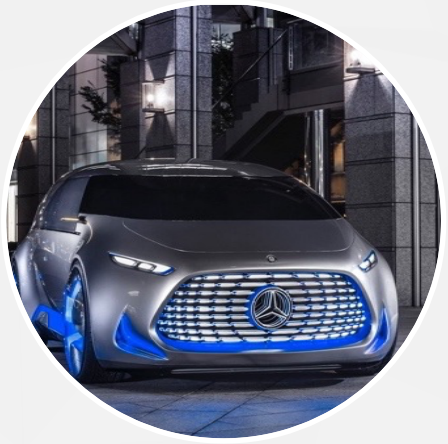
Enable clever ride sharing modes, offer exclusive services for VIPs...

AUTONOMOUS CARS

Episode 2

BESTMILE

Our platform is designed to work with any kind of vehicle



From autonomous pods to fleets of cars

Confidential discussions regarding technological and commercial partnerships are underway

IN 10 YEARS, AUTONOMOUS MOBILITY WILL BE A HUNDREDS BILLION $ INDUSTRY

BESTMILE
THE MISSING LINK

50%

OF IT
WILL BE COVERED
BY NEW PLAYERS

AND IT'S STARTING NOW

THANK YOU.

And thanks to our partners

ÉCOLE POLYTECHNIQUE FÉDÉRALE DE LAUSANNE
EPFL Innovation Park
innovaud
platinn
GENILEM
swissnex
venturelab
lift
ALP ICT Lake Geneva ICT Cluster
canton de vaud
Office for Economic Affairs (SPECo)
CTI Entrepreneurship Training
Western Switzerland