



Internet of Things workshop

SMART Mobility @ CERN



- CERN mobility working group (2016)
 - Representatives from all departments
 - Chaired by CERN mobility coordinator
 - Develop CERN mobility plan

- CERN mobility services
 - Shuttle
 - Car fleet
 - Bike fleet

Mobility general objectives

M1 Optimiser l'offre et la gestion du stationnement.

- M1.1 Favoriser un taux de rotation en phase avec les usages dans les zones desservies.*
- M1.2 Mettre en place une gestion différenciée des parkings longue, moyenne et courte durée.*
- M1.3 Privilégier l'utilisation des zones de stationnement pour les usages professionnels.*
- M1.4 Envisager les parkings en étage (aérien, enterré) dans le cadre de nouveaux développements.*

Parking management

Communication

M2 Promouvoir les offres alternatives de transport inter, et intra-sites.

- M2.1 Encourager les déplacements en mode doux (piétons/vélos) par des mesures d'aménagement et d'incitation.*
- M2.2 Favoriser le covoiturage et augmenter l'attractivité et l'offre des navettes.*
- M2.3 Renforcer et diversifier l'offre de véhicules en libre-service.*

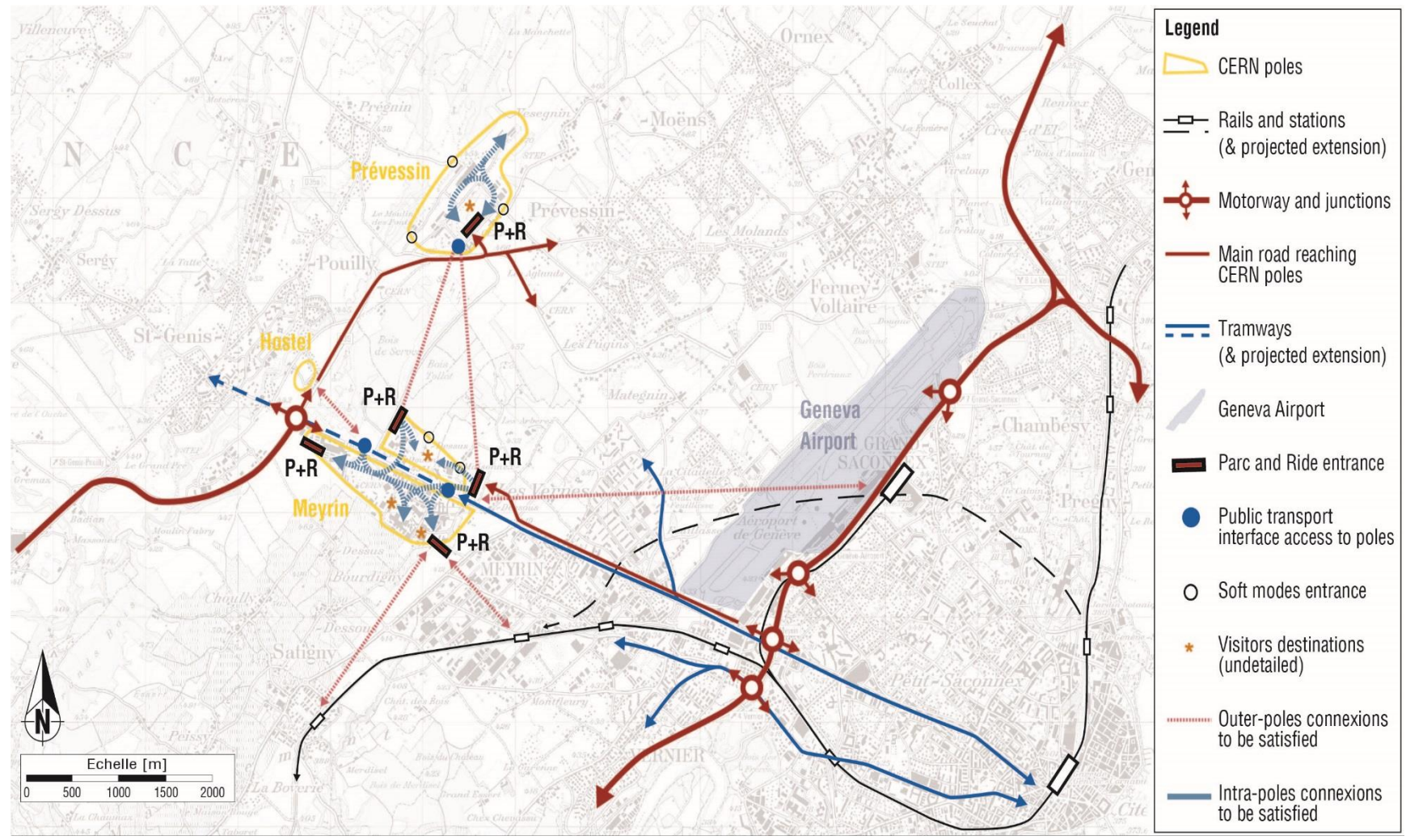
M3 Favoriser un accès efficace et fluide aux sites du CERN.

- M3.1 Optimiser la fluidité des accès au CERN.*
- M3.2 Améliorer la hiérarchie du réseau routier à l'intérieur du domaine CERN.*
- M3.3 Favoriser les synergies avec les services de transport public et les initiatives d'offre d'infrastructure de transport.*

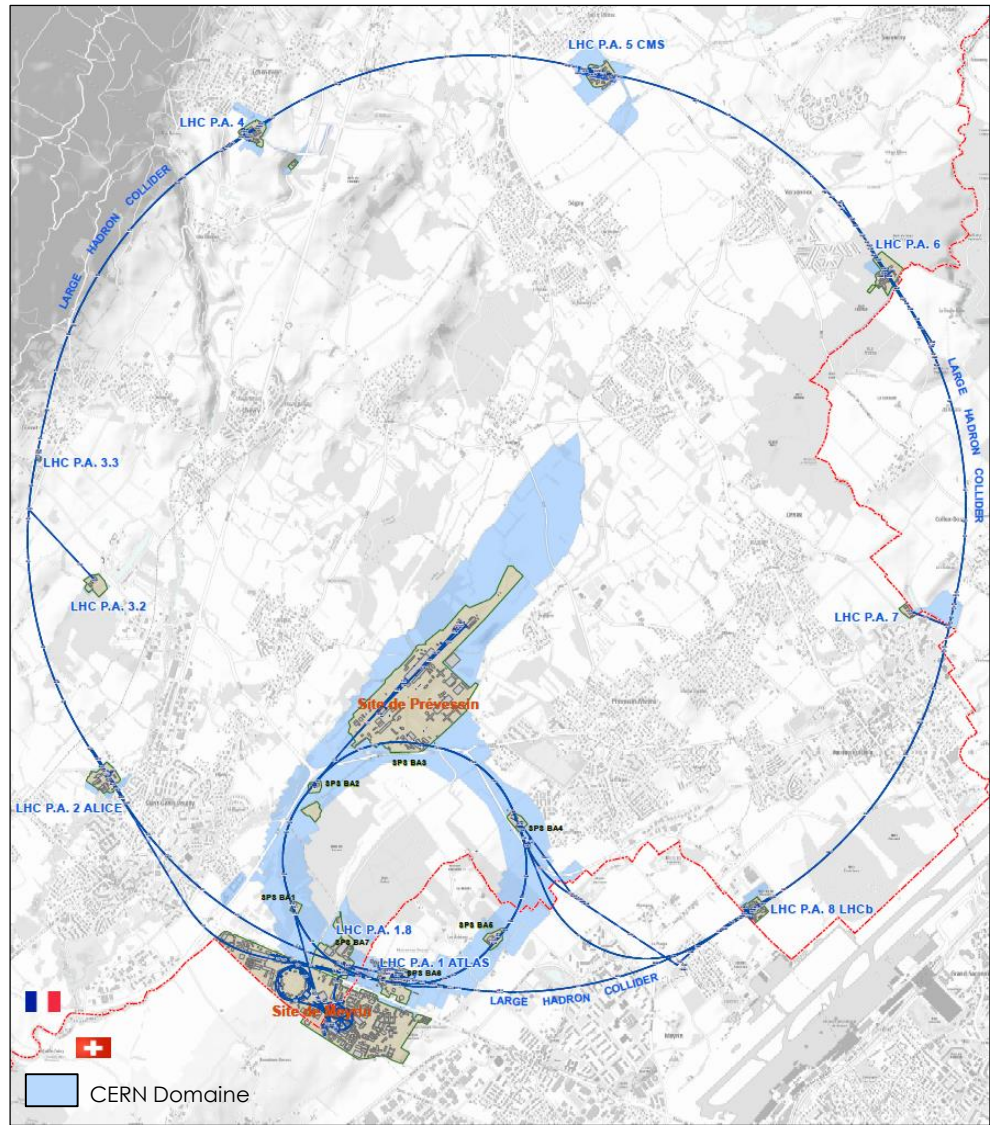
Infrastructure



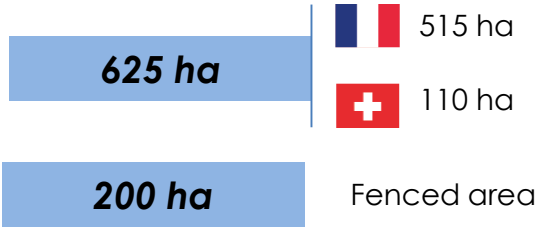
Multi-modal concept 2030



Key figures



LAND



Key figures - infra



CERN Domaine



... **700+** buildings accounting for 500.000 m²



A network of ...



... of roads



6 180 parking spots



101ha

... of green spaces

Key figures - users

Present ...



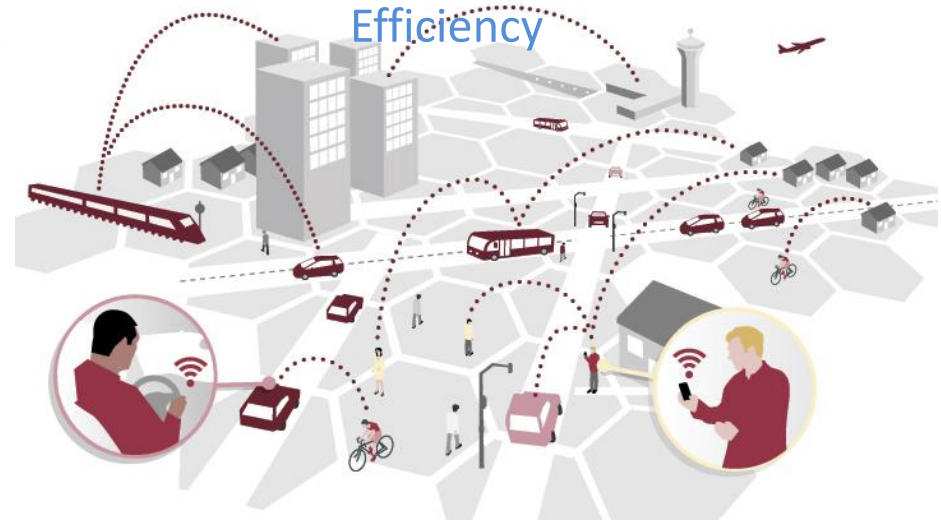
10 000 professionals coming on site daily
150 000 visitors annually

Modal share ...



... aspiration

Ease of use Sharing
Availability Community
Connectivity Multi-mode
Efficiency



Shuttle

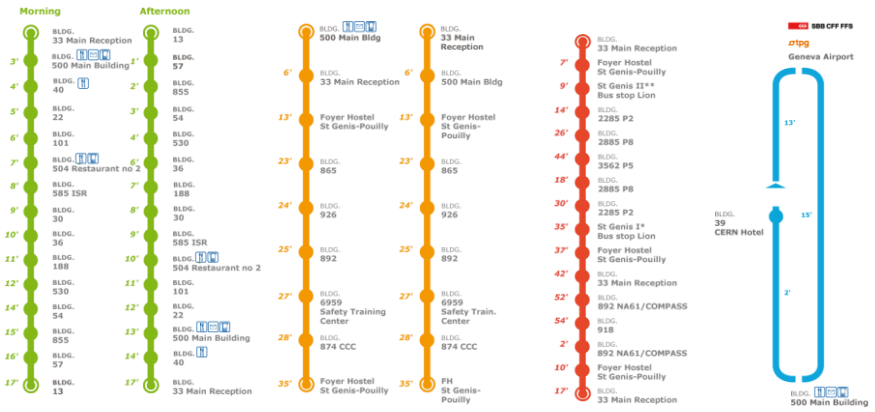
Present ...



... aspiration

Shuttle service

4 defined circuits inter/intra sites
Relatively low frequency and usage



Meyrin

Preveessin

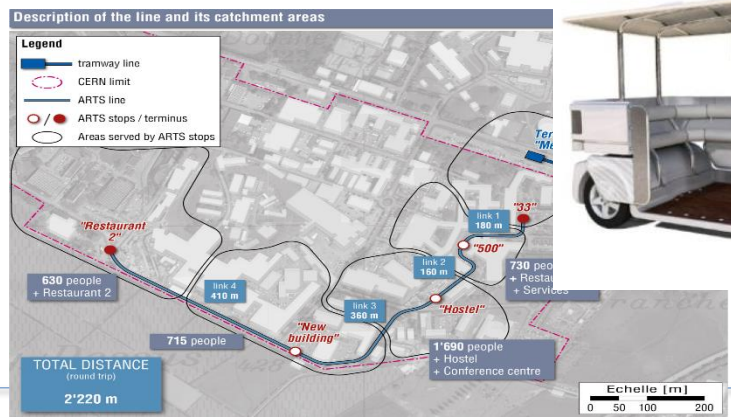
Experiences

Airport



Autonomous shuttle

- Dynamic management
- Flexi routing
- Real time information



Bikes

Present ...



... aspiration



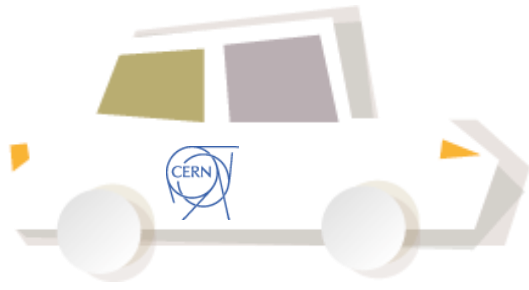
SE Bike Rental Service

- 600+ bikes
- Bike assigned to individual
- Free service outside summer
- Summer = 1 chf/day
- Low usage in particular outside summer period
- Limited demand being met during summer



Car fleet

Present ...



... aspiration



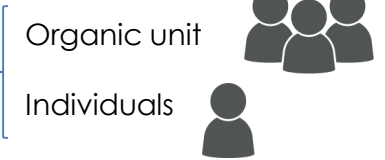
- ✓ Increase car usage
- ✓ Improve service level

700+ vehicles

✓ 10% Car Sharing

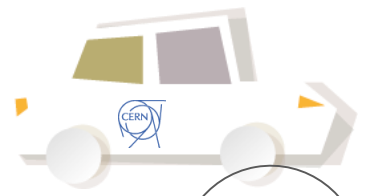


✓ 90 % assigned to



Low utilisation rate...

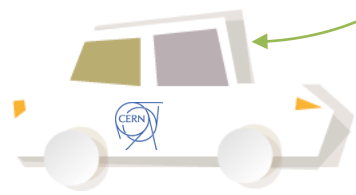
Point



to



Point



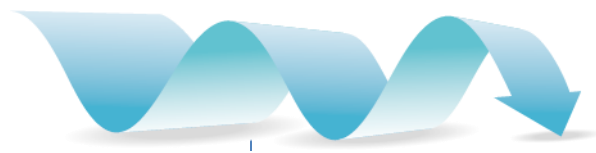


Tracking-Monitoring

Present ...



CERN GPS tracking on cars



... aspiration

TABLEAU DE BORD SITUATION ADMINISTRATION ECO ALERTES RAPPORTS TOOLBOX

TABLEAU DE BORD

Focalisé sur: CERN avec sous-groupes [x] Valider

Connexion précédente: 02-11-2017 00:37:59

632 80% Véhic. sans incidents

30 Chauffeurs

713 Véhicules Disponibles: 6

713 Dispositifs Disponibles: 6 Communicants: 705 (99.2%)

138 19% Véhicules sans déplacement

Groupe: [dropdown]
Véhicule: [dropdown]
Période: 01-11-2017 00:00:00 03-11-2017 23:59:59

Afficher [dropdown] [dropdown] [dropdown] [dropdown]

Kilométrage	Durée	Vitesse	Consommation	Emission CO2
37.2km	1h et 28min	26km/h	6,13l/100km	140g/km

09:08
09:11
Permette autorisée: 156, Route C. S. W. Meyrin, 1242, Suisse, Suisse, Svizzera, Svitze

10:04
10:07
Permette autorisée: 04, Route Estienne, Prévessin-Alpin, 91200, Cex, France

Map showing vehicle tracks on a city map.



Dynamic real time info to users



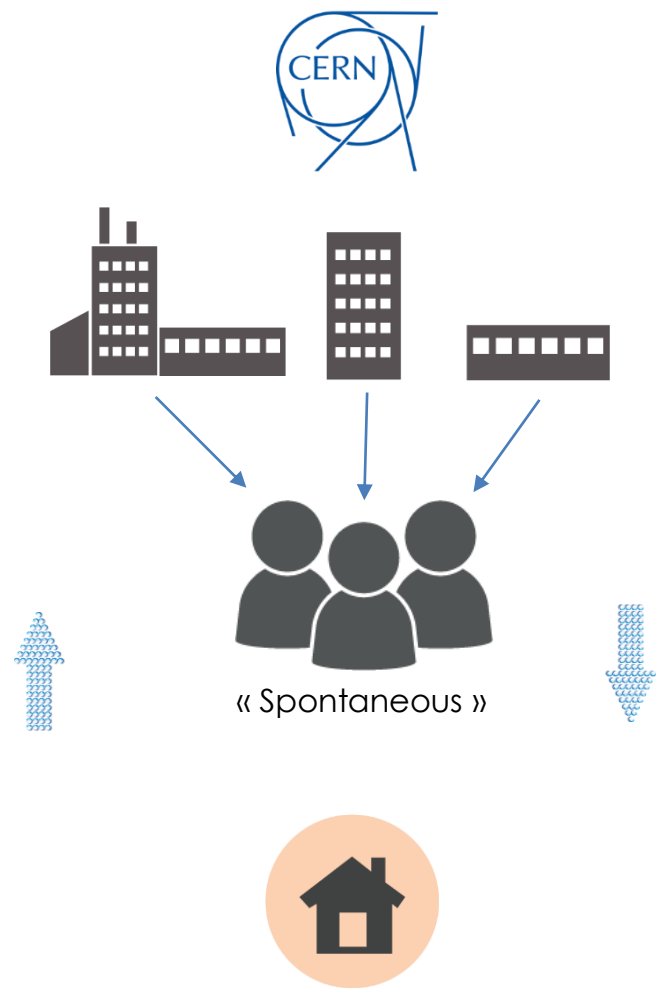
One card fits all services

Car pooling

Present ...



... aspiration



Carpool
CERN
Network

Parking

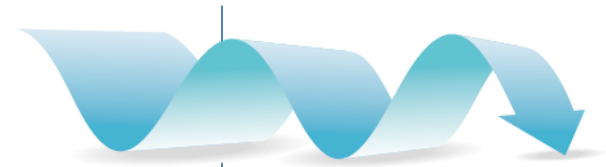
Present ...



... aspiration



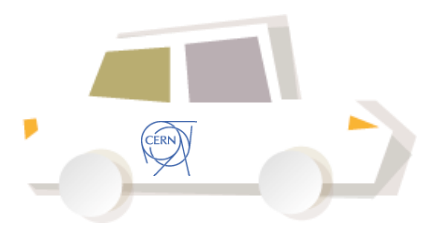
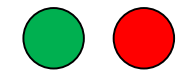
Free of charge
Parking saturation



Access Control with
car registration reader



Smart System Parking



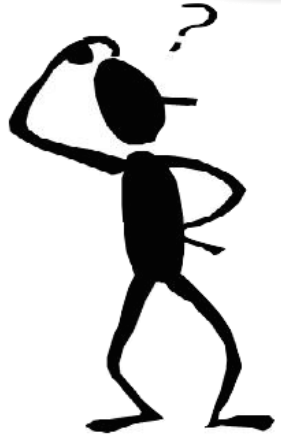
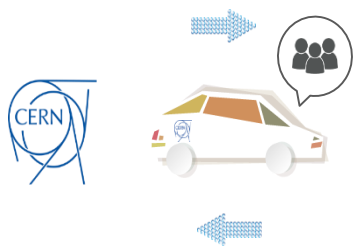
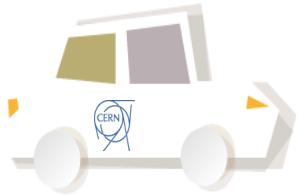
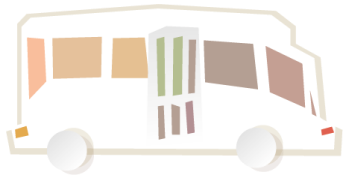
LONG term

SHORT term



Mobility as a Service

Present ...



... aspiration



CERN MaaS platform



Many thanks for your attention!

