NEW (BIG) DATA FOR MOBILITY KNOWLEDGE AND MANAGEMENT

SOME EXPERIENCES AND OPEN CHALLENGES

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SNCF GROUP

FIVE CORE BUSINESS – WORLDWIDE PRESENCE

€31.4 bn
revenue

260,000
employees

33%
of revenue comes from outside France*

120
countries

€8.2 bn
in investments (all funding sources combined)

13.5
million passengers carried daily, in France and around the world

* Integrates changes in scope of consolidation over the full year, including OHL, Eurostar and Thalys.

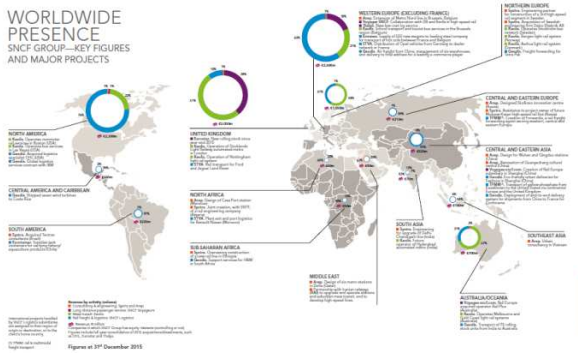
SNCF RÉSEAU
(ÉPIC SNCF RÉSEAU)

SNCF VOYAGEURS
(ÉPIC SNCF MOBILITÉS)

KEOLIS
(ÉPIC SNCF MOBILITÉS)

SNCF LOGISTICS
(ÉPIC SNCF MOBILITÉS)

SNCF IMMOBILIER
(ÉPIC SNCF)



Innovation & Research Department

Stand out and strengthen one's competitiveness in a changing world

NEW APPROACHES TO COLLECT AND TAKE BENEFIT OF TRAFFIC DATA COLLECTIONS

DATA HIJACK AND DATA ON PURPOSE
SYSTEM PROVIDED, IN STATIONS, ON BOARD COUTING, ON RAIL, ON LINE

Scientific challenges

+ Data are always partial
+ Link between different types of data

Different analyses

+ Different scales : network and station
+ Different scopes : mobility demand, effective mobility and transportation supply
+ Different moments : before, during and after the passenger's journey

1. URBAN TRAFFIC ESTIMATION

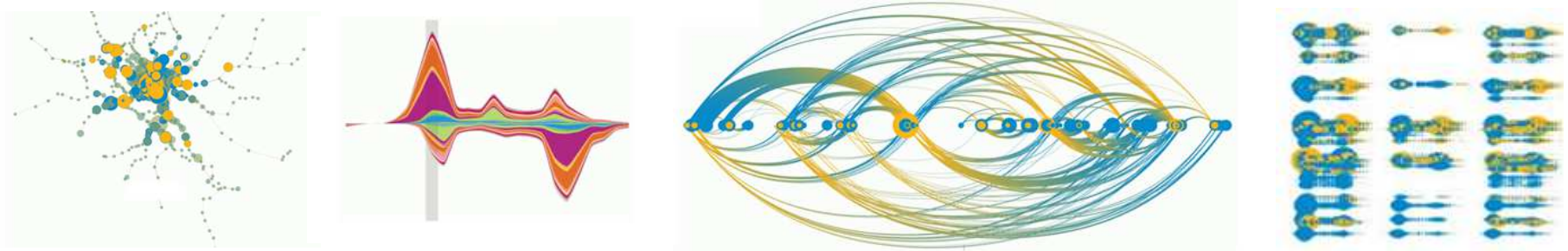
FROM AUTOMATED DATA COLLECTION SYSTEMS IN PARIS SUBURBS REGION

Scientific challenges

+ Various data collected : sells, smart card data, manual countings, on board couting systems
+ Uncomplete data
+ Different systems and point of views

Interesting results

+ Unified and coherent approach
+ Estimation methodology to estimate traffic at station, and origine-destination matrix
+ Different visualizations to explore the initial data and estimation



For more details, see : Remy A., Urban passenger traffic estimation from automated data collection systems, 13th World Conference on Transport Research, Rio 2013

2. TOWARDS A DYNAMIC PASSENGER FLOW MANAGEMENT INTO BIG STATIONS

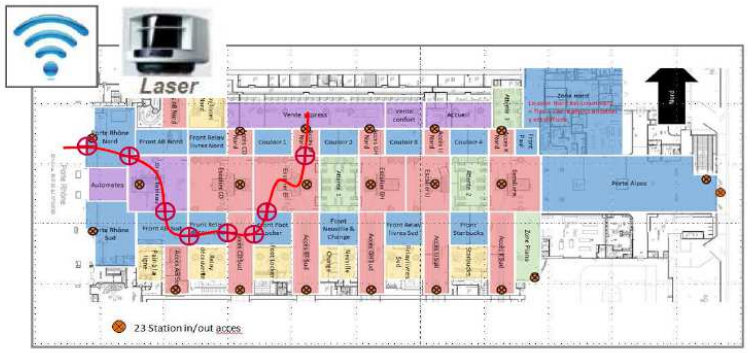
TACKING BENEFIT OF WIFI PROVIDING SYSTEM IN LYON PART DIEU STATION

Scientific challenges

+ On of the biggest of European interchange stations (120 000 people per day)
+ Uncomplete and hijacked data from wifi providing system
+ Data from other systems in the station : trains real-time schedule, information, etc.

Interesting results

+ Statistical approaches to unbias wifi data thank to some laser data, prediction of th traffic
+ New indicators for the mobility into big stations especially about path analysis
+ Real time and interactive visualization will be soon be experimented by people working into the station

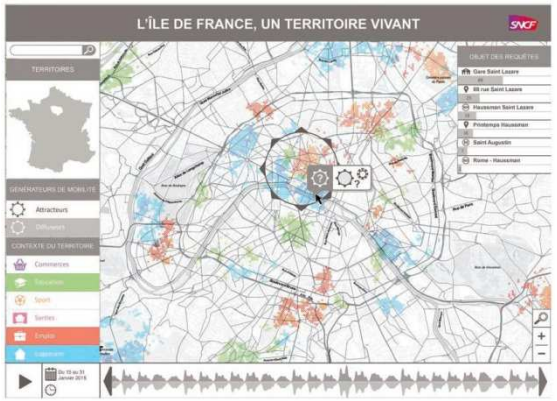


- Lyon Part-Dieu station functional zones used to estimate Wi-Fi local flow parameters and laser flow measure points.

For more details, see : Ganansia, F.Railway station flow assessment using fusion of Wifi and laser technologies, 14th World conference on Transport Research, Shanghai, 2016

3. TAKE ADVANCE TO ANTICIPATE MOBILITY

DATA HIJACK OF ITINERARY REQUESTS

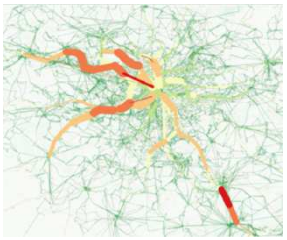


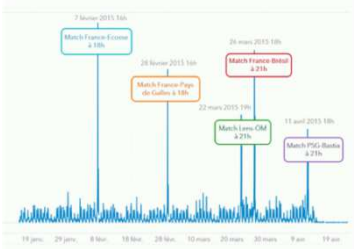
Scientific challenges

+ First exploration of what can be done with itinerary request logs
+ Data mixed with actual mobility data, territorie and events data
+ Analyse of anticipation phenomena

Interesting results

+ Request and actual mobility are linked : « stress level » indicator
+ Anticipation phenomena improve mobility prediction
+ Interactive data visualisation with territories data in progress





For more details, see : Remy A., Chandesris, M., Mastalerz, S. , Hyenne, A., Bousquie A., Multimodal travel demand based on itinerary requests,14th World Conference on Transport Research, Shanghai 2016

Guerin Caroline, Chandesris Maguelonne, Remy Anaïs, « Territoire vivant », *Sciences du Design* 1/2016 (n° 3) , p. 30-33

SOME OPEN CHALLENGES

MORE DATA, FASTER DATA, MORE AGILE PRODUCTION

New challenges for further researches

+ Link mobility data with human activities and territories description to developp better prediction, especially in case of events
+ Real-time and now-casting to furnish real-time passenger and operator better information
+ Better agility to take into account the mobility knowledge to adapt railway offer and develop door to door multimodal supply

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