



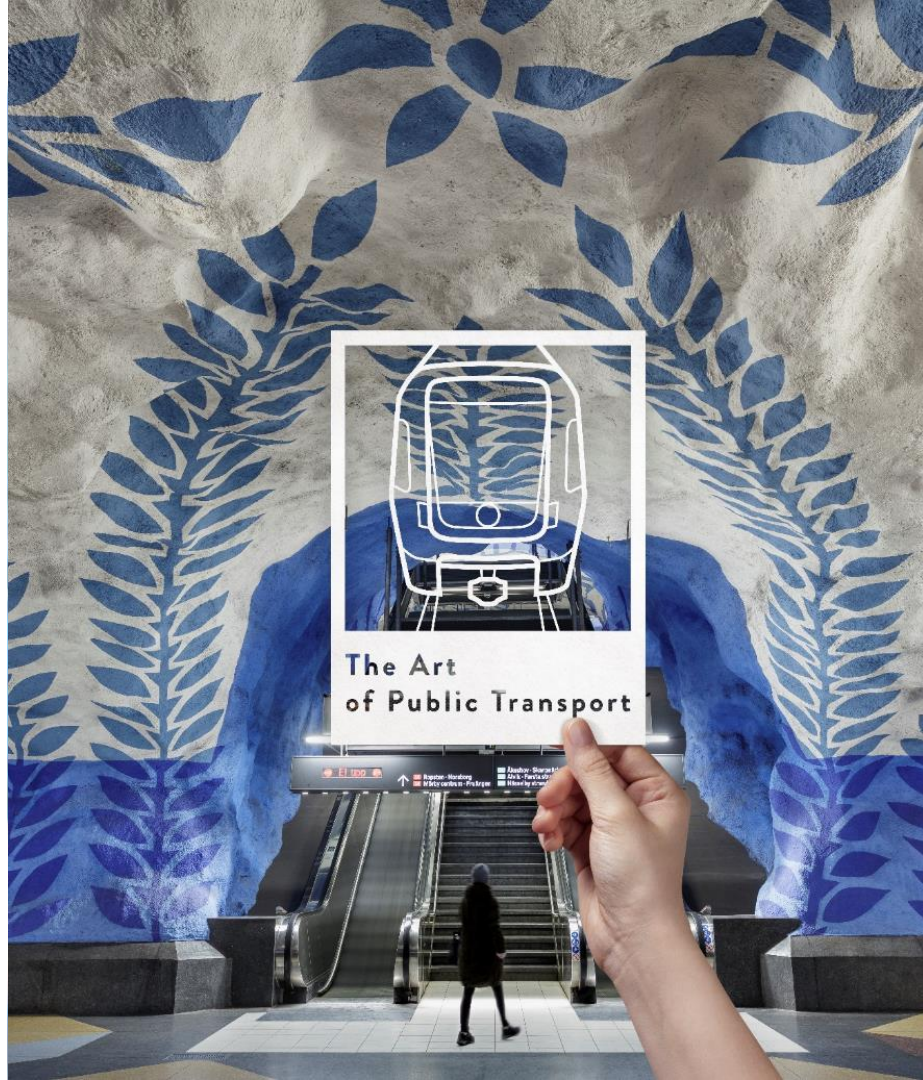
9-12 JUNE  
STOCKHOLM 2019  
GLOBAL PUBLIC  
TRANSPORT SUMMIT



# Driving service quality and operational performance – it's all in the data

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# (SOME) RAIL INDUSTRY CHALLENGES



Adapting in a **fast-evolving mobility landscape**

**Meeting** growing and more complex **demand**

**Delivering** the best **service** possible with **resources** available under increasing **constraints**

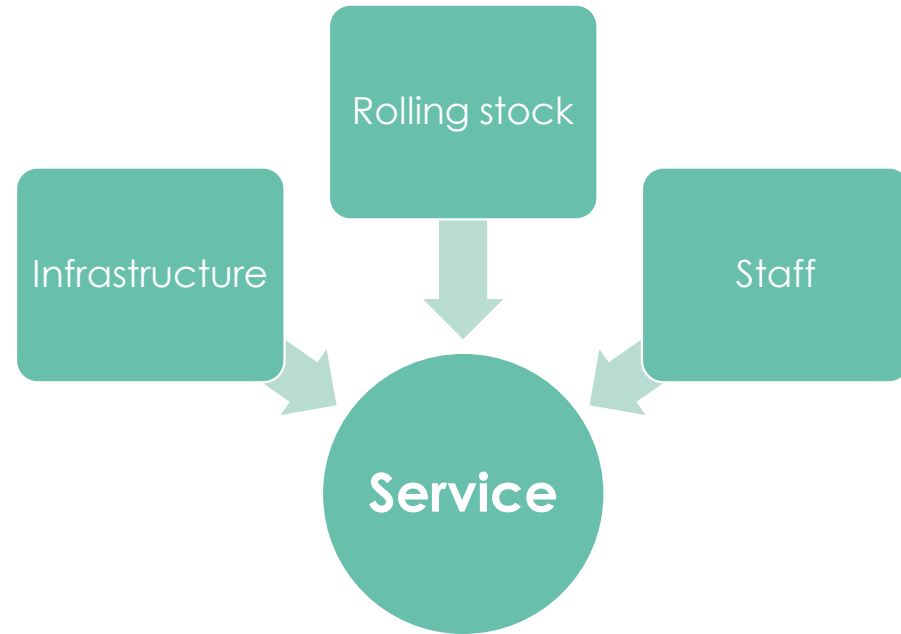


Source: Digital SNCF

# INTEGRATED RESOURCE MANAGEMENT: WHY?

**Key resources** are often planned and managed in **silos**:

- **Difficulty to adapt** to change and offer more flexible service
- **Delays and errors** throughout the service production process
- **Impaired decision-making** due to limited view of the impacts



# SNCF CASE STUDY

A transformative approach towards  
integrated planning and resources management



# SNCF AT A GLANCE

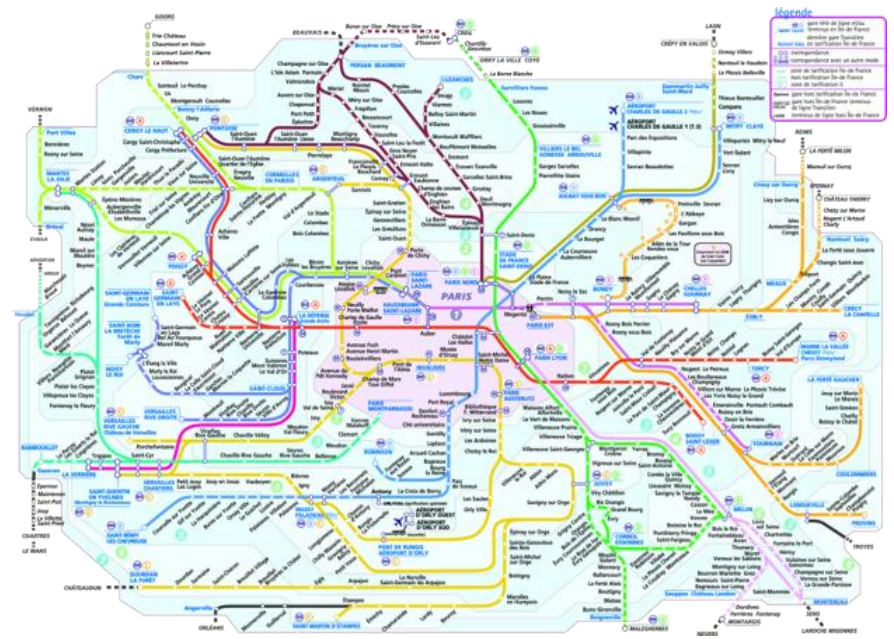


France's state-owned railway:

- > 270,000 employees
- > 1 billion passengers / year
- > **15,000 trains / day**

3 passenger rail operations:

- Transilien (Urban / Suburban)
- TER (Regional trains)
- TGV INOUI & OUIGO (High-Speed)



SNCF Transilien network  
2<sup>nd</sup> largest urban rail network in the world

# SNCF CHALLENGES AND STRATEGIES



## CHALLENGES

Opening to **competition** (2020)

**Growing demand** (especially on the urban/suburban RER network)

Major **infrastructure overhaul** impacting planning and service delivery

**Quality of service** & attractiveness

## STRATEGIES

Planning and Operations organization and **transforming processes**

Adopt a more **agile culture** and review low-value practices

Invest significantly in **data management** and **valuing data**

Rely on **industry solutions**

# FOCUS: SNCF TRANSILLEN NET PROJECT



## GOALS

Streamline / **integrate processes**  
**Adapt service** more proactively  
Improve **service robustness**

## SCOPE

1,000 **trainsets**  
6,000 **daily departures**  
3,000 **drivers**  
12,000 **station staff**



**NET** | Nouvelle  
Exploitation  
Transilien

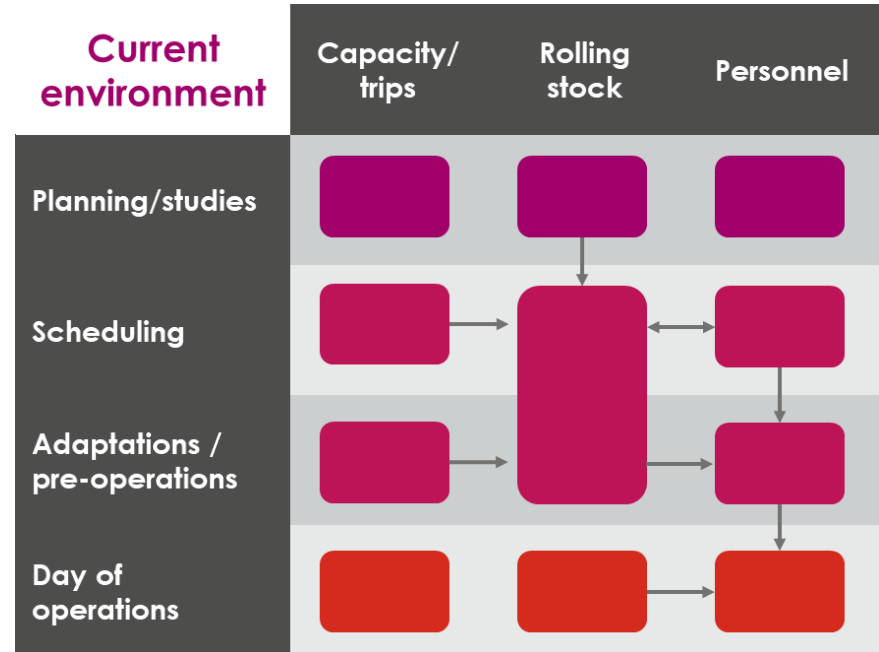


# FOCUS: SNCF TRANSILIEN NET PROJECT



After an international RFP, GIRO's **HASTUS** solution was selected:

- From **Planning** up to **Operations**
- **7 in-house systems replaced**
- **> 50 data interfaces**
- **Agile delivery** with functions in production in the 1<sup>st</sup> year
- **Cloud-hosted** environment with **high availability**





# SNCF PROJECT STATUS

## Transilien (Urban / Suburban)

- In progress since Jan. 2018
- Some **HASTUS** modules already in production

## TGV INOUI & OUIGO (High-Speed)

- Launched in Dec. 2018
- New process and planning solution for the 2021 Service Plan

## TER (Regional trains)

- Launched in June 2019



# GIRO AT A GLANCE



**Software solutions** for planning and managing passenger transport

**40 years** in the industry

**500 employees**

Supporting more than  
**300 operations in 27 countries**

One of the largest Public Transport  
**R&D** hubs in the world

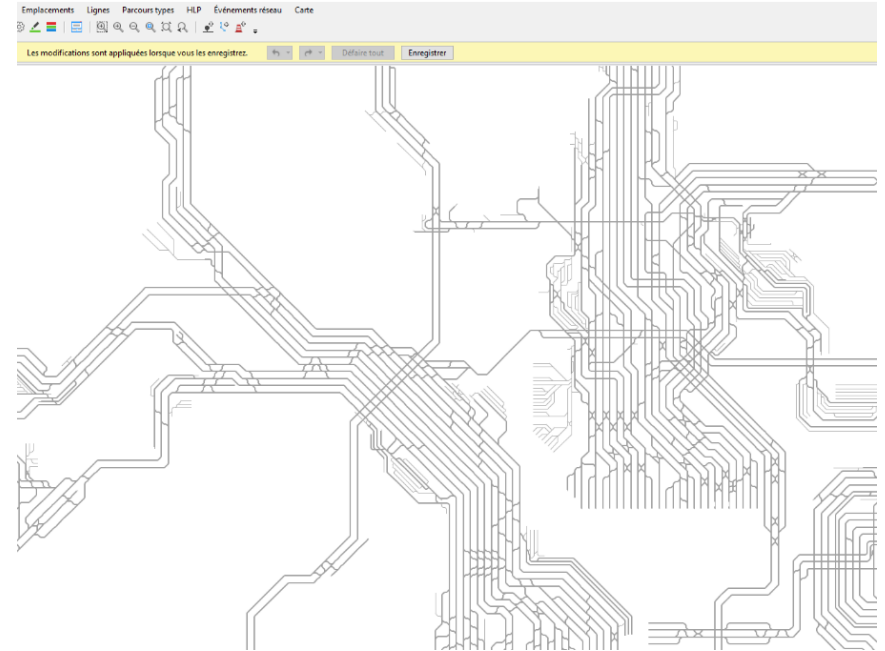
# HASTUS FOR RAIL PLANNING



**Powerful algorithms** to balance costs, constraints and quality

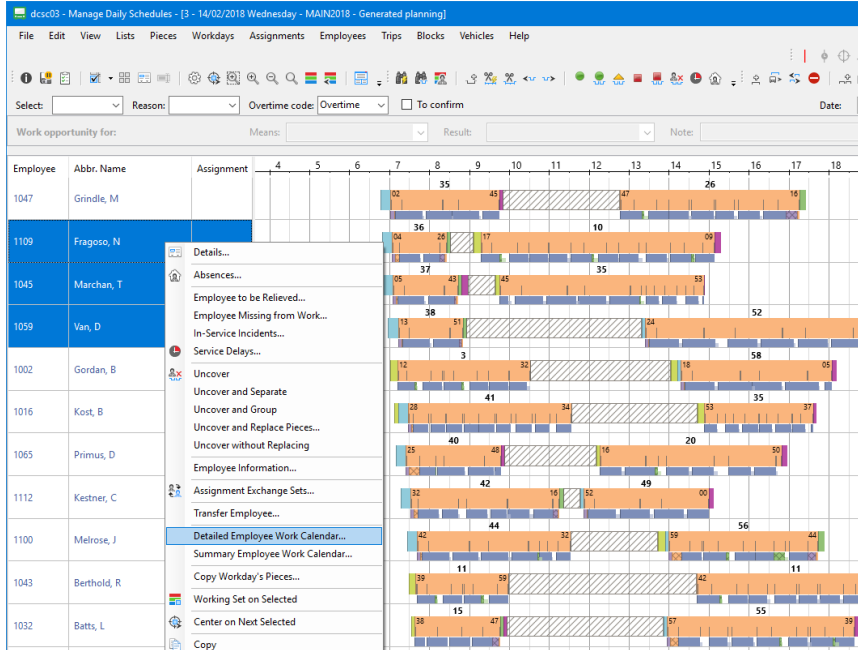
**Modular and configurable** environment to meet operators' **goals** and **context**

**Fully integrated** throughout production phases, **enabling easier planning adaptations**



Infrastructure modelling for allowed paths and restrictions

# HASTUS FOR RAIL OPERATIONS



Environment for **work management** and **service adjustments**

Algorithms to **distribute work** based on **rules** and **staff preferences**

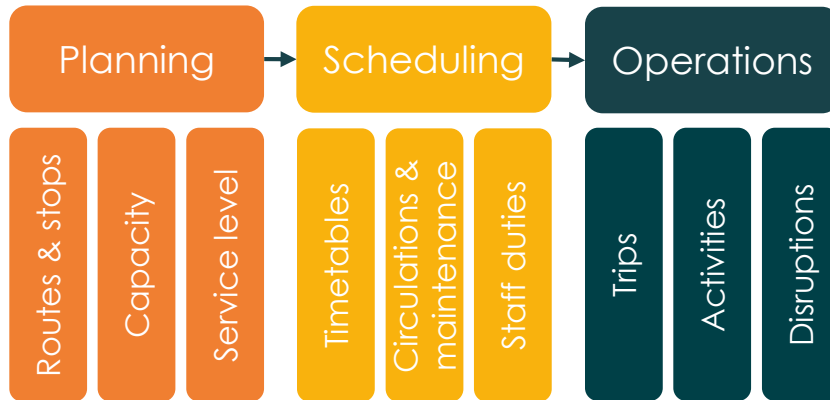
**Mobile portal** for operational employees

**Real-time integration** for better **decision-making support**

Staff-assignment management

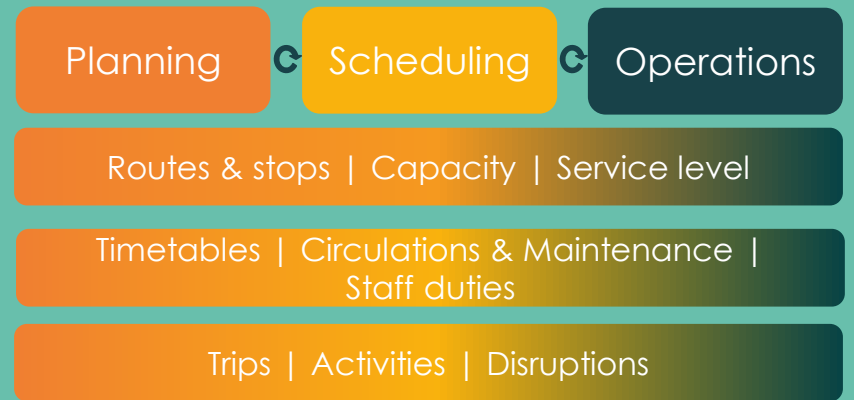
# PARADIGM SHIFT FOR RESOURCES MANAGEMENT

## From a linear, traditional approach...



*Limited change capabilities and view of impacts on all resources*

## ... to a more integrated approach



**Continuous adaptations and real-time view on all resources**

# SNCF USE CASE: ADAPTING FOR TRACK WORKS



**Major network overhaul:** €1.8 billion in Greater Paris region (2018 only)

**Planning** service with track works is a **titanic task**: a single scenario requires days of effort

Planning is done vertically, with **limited overall view of resources** (infrastructure, rolling stock and staff)

Significant **impacts** and **rework** in case of **works delays**

# SNCF USE CASE: ADAPTING FOR TRACK WORKS



sct01 - Gérer les contextes de service - [POC2017 - POC2017 - Fermeture SCD-SNB]

Fichier Éditer Affichage Listes Jours

Contexte de service: Fermeture SCD-SNB

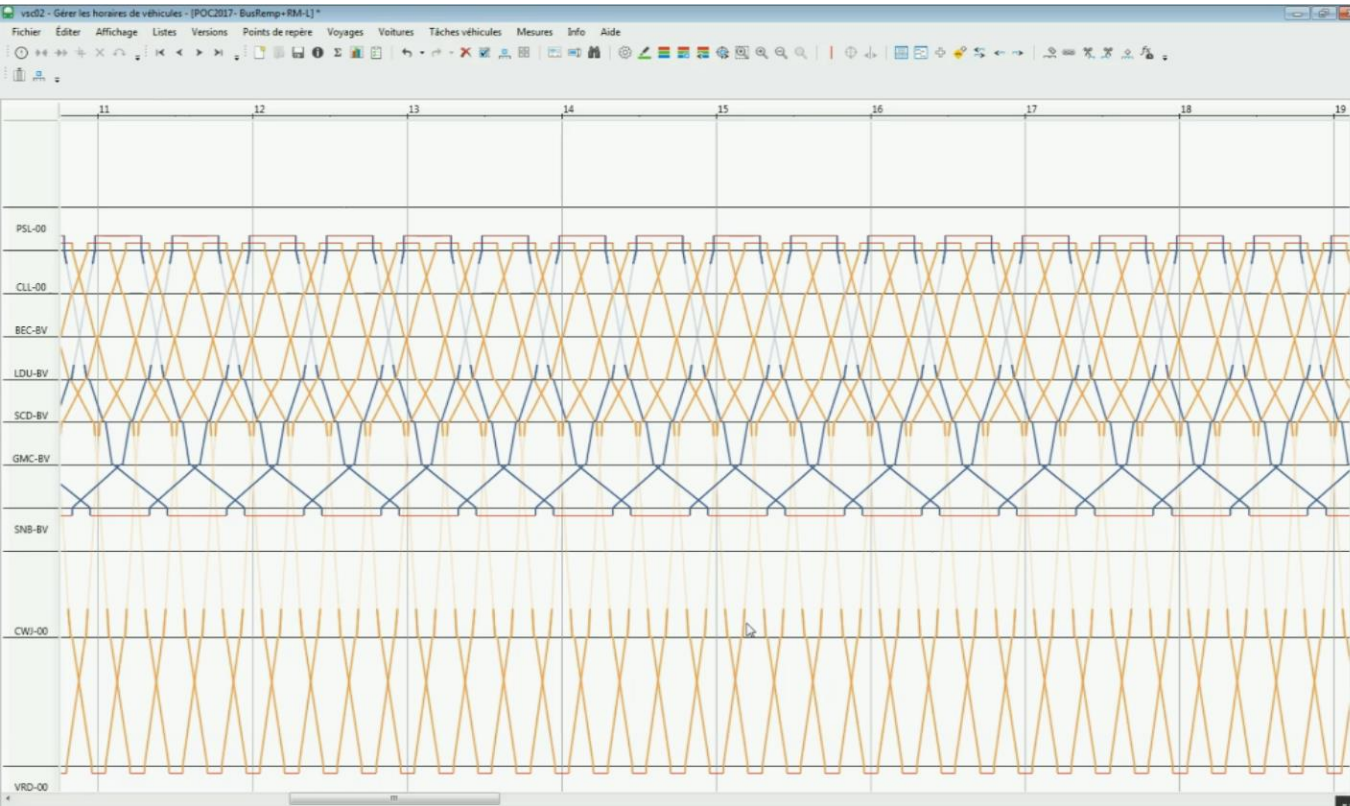
Période: <Initiale> 12/12/2016

Afficher la période courante

Période et contexte de service courants		Période et contexte de service courants						Horaires de véhicules				
Unité hor.	Type	Lundi	Mardi	Mercredi	Jeudi	Vendredi	Samedi	Dimanche	Nom	Type jour	N°	Description
L	Horaire-maître	[Base], Lundi 01	[Base], Ma-Me-J 01	[Base], Ma-Me-J 01	[Base], Ma-Me-J 01	[Base], Vendredi 01	[Base], Samedi 03	[Base], Dimanche 03	BusRemp	Dimanche	01	Horaire pour les bus
RM-L	Voiturage	[Base]RM-L Lundi 11	[Base]RM-L Ma-Me-J 07	[Base]RM-L Ma-Me-J 07	[Base]RM-L Ma-Me-J 07	[Base]RM-L Vendredi 05	[Base]RM-L Samedi 05	[Base]RM-L Dimanche 05	BusRemp	Dimanche	02	Horaire pour les bus
JS-L	Habillage	[Base]JS-L Lundi 04	[Base]JS-L Ma-Me-J 02	[Base]JS-L Ma-Me-J 02	[Base]JS-L Ma-Me-J 02	[Base]JS-L Vendredi 05	[Base]JS-L Samedi 03	[Base]JS-L Dimanche 03	BusRemp	Dimanche	03	Bus de remplacement
									L2 2017	7-jours	01	event dans 2nd note
									L2 2017	7-jours	10	
									L2 2017	7-jours	20	
									L2 2017	7-jours	50	
									L2 2017	7-jours	51	
									L2 2017	7-jours	52	W
									N045	7-jours	01	
									RM-L	Dimanche	09	sur Infra
									RM-L	Dimanche	10	sur Infra
									RM-L	Dimanche	11	sur Infra
									RM-L	Dimanche	12	test
									RM-L	Dimanche	14	sur Infra
									RM-L	Dimanche	16	sur Infra
									testTRL	Dimanche	01	test synch

- Select applicable period and timetable

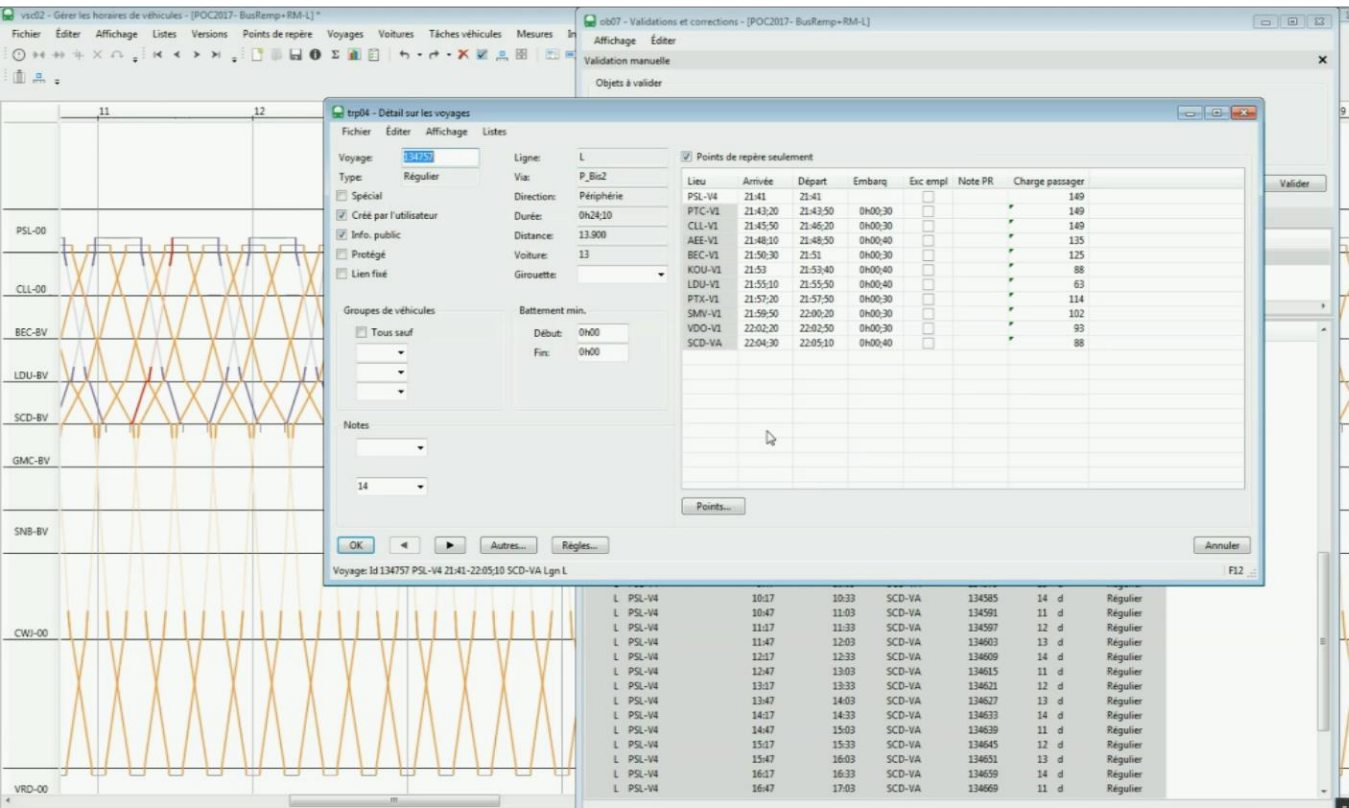
# SNCF USE CASE: ADAPTING FOR TRACK WORKS



- Select applicable period and timetable
- Cut impacted trips and create returns



# SNCF USE CASE: ADAPTING FOR TRACK WORKS



The screenshot displays a software interface for managing railway schedules. A central window titled 'trp04 - Detail sur les voyages' is open, showing details for a specific trip. The trip is identified as 'Voyage: 13125' and is a 'Régulier' (regular) service. It is associated with 'Ligne: L' and 'Via: P\_Bi2'. The trip details include: Direction: Périphérie, Durée: 0h24:10, Distance: 13.900, Voiture: 13, and Girouette. The 'Points de repère seulement' (stopovers only) checkbox is checked. A table below the details lists the stops for this trip:

Lieu	Arrivée	Départ	Embarq.	Exc empl.	Note PR	Charge passager
PSL-V4	21:41	21:41				149
PTC-V1	21:43:20	21:43:50	0h00:30			149
CLL-V1	21:45:50	21:46:20	0h00:30			149
AEE-V1	21:48:10	21:48:50	0h00:40			135
BEC-V1	21:50:30	21:51	0h00:30			125
KOU-V1	21:53	21:53:40	0h00:40			88
LDU-V1	21:55:10	21:55:50	0h00:40			63
PTX-V1	21:57:20	21:57:50	0h00:30			114
SMV-V1	21:59:50	22:00:20	0h00:30			102
VDO-V1	22:02:20	22:02:50	0h00:30			93
SCD-VA	22:04:30	22:05:10	0h00:40			88

Below the details window, a list of affected trips is visible, showing columns for 'L' (line), 'A' (arrival), 'D' (departure), 'S' (service), 'N' (number of days), 'R' (regularity), and 'C' (category). The list includes various trips such as 'L PSL-V4' at 10:17, 'L PSL-V4' at 11:03, 'L PSL-V4' at 11:37, 'L PSL-V4' at 11:47, 'L PSL-V4' at 12:17, 'L PSL-V4' at 12:47, 'L PSL-V4' at 13:17, 'L PSL-V4' at 13:47, 'L PSL-V4' at 14:17, 'L PSL-V4' at 14:47, 'L PSL-V4' at 15:17, 'L PSL-V4' at 15:47, 'L PSL-V4' at 16:17, and 'L PSL-V4' at 16:47. Each entry also specifies the destination (e.g., SCD-VA), the number of days (e.g., 14 d), and the regularity (e.g., Régulier).

- Select applicable period and timetable
- Cut impacted trips and create returns
- Plan replacement buses based on pax data

Not shown (but needed!)

- Reoptimize train circulations
- Reoptimize staff duties
- Put into production

# TAKEAWAYS



**Increasing rail challenges** require focus on **efficiency**, **adaptability** and **service quality**

**Integrated resource management** enables **adapted planning**, **continuous impact analysis** and more **efficient operations**

**Valuing** and **integrating data** are key components of integrated resource management

**Complexity** can be addressed with the support of **integrated solutions** and **expertise**

# THANK YOU

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## HALL A



**Booth A4058**