



Improving public transport efficiency for over 35 years

By Alexandre Savard, PMP
Senior Account Manager

GIRO: then and now

1979: Public transport in Montréal

First bus line
in 1919

≈ 1 600 buses
(today ≈ 1 700)

Sub-optimised
network
(no interlining)



Source: STM

1979: Public transport in Montréal



Source: STM

Metro
commissioned
in 1966

Extended in
1976 (Olympics),
1986 and 2007

759 railcars
(still 759 today)

1979: Public transport in Montréal



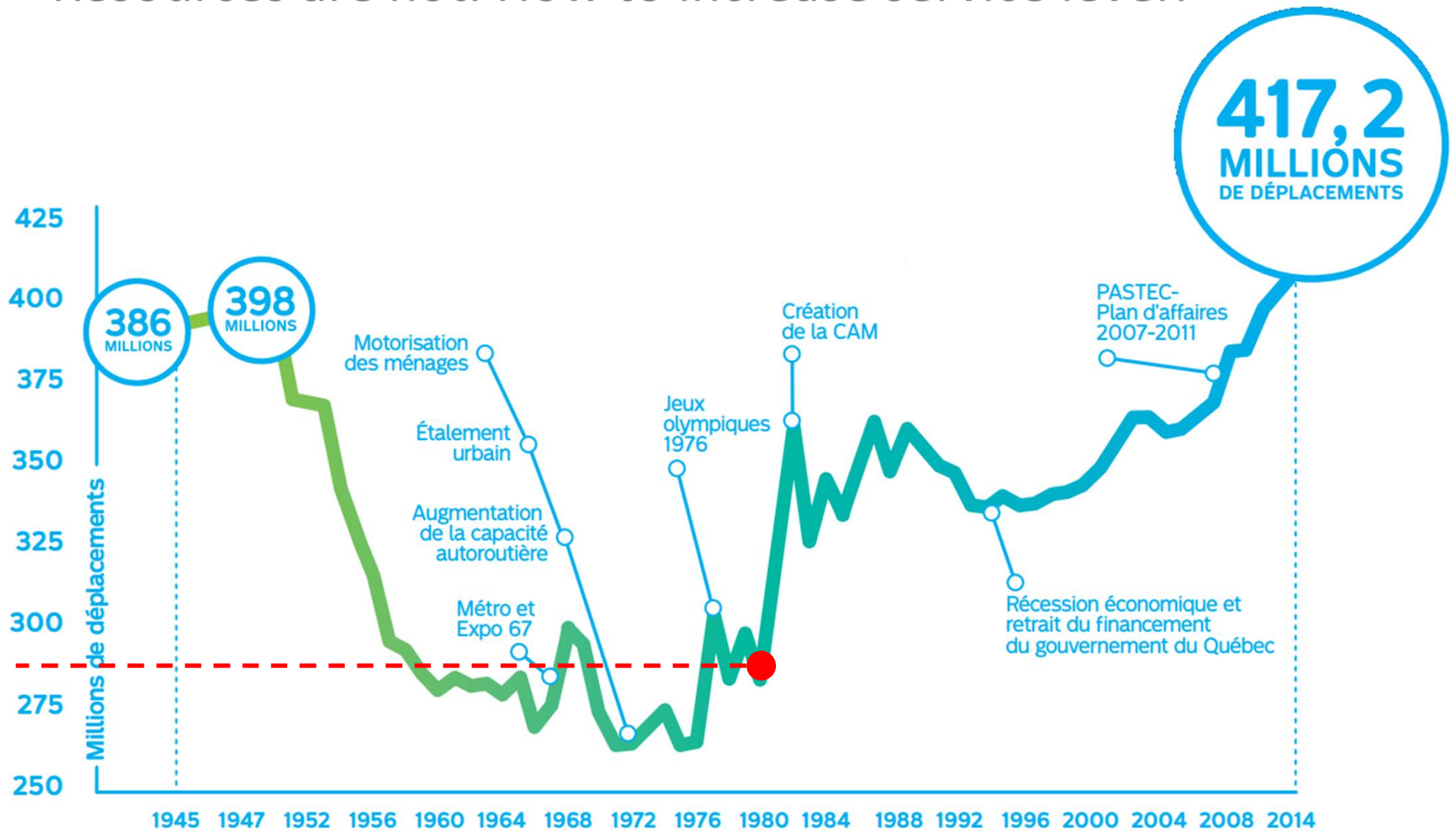
Source: STM

Tedious planning processes

Rudimentary customer information

1979: Ridership is on the rise

Resources are not. How to increase service level?



1979: GIRO is founded

Optimisation algorithms at its core

```
C -----*****
C                                     *
C           h.a.s.t.u.s               *
C       "horaires et assignations d'un systeme de transport *
C           urbain structure "        *
C                                     *
C ce programme analyse une convention collective de chauffeurs *
C d'autobus , il peut etre accouple au programme             *
C lirmps pour imprimer les resultats                             *
C                                     *
C fonctions: * lire un dictionnaire pour connaitre les mots a *
C             reconnaitre                                         *
C             * lire une convention collective                     *
C             * lire des horaires de vehicules                  *
C             * produire un probleme de programmation lineaire *
C             * produire un rapport "lirmps"                    *
C                                     *
C documents: pour utilisation voir                                 *
C             document # 93 du centre de recherche sur les      *
C             transports                                         *
C                                     *
C -----*****
C -----*****
C *****
C * i m p o r t a n t * * * * i m p o r t a n t * * * * i m p o r t a n t * * *
C *****
C                                     *
C ---# ce programme a ete developpe par jean-yves blais      *
C au cours de 1977.                                         *
```

35 years of innovation and expertise

1979

GIRO founded, based on university research project

Launch of **HASTUS** software

Montréal: 1st client

1995

HASTUS now available in a Windows® environment

Tablet and Web applications

2015

Clients' feedback continues to drive innovation

1988

Introduction of **HASTUS** daily operations modules

2006

Development of **HASTUS-Rail** applications

GIRO at a glance

Based in
Montréal,
Canada

325+
skilled
employees

Industry-leading software solutions
for planning and managing
transport-related operations



GIRO



Public transport
(*HASTUS™*)

Demand
responsive
(*GIRO/ACCES™*)

Postal service
(*GeoRoute™*)

GIRO

Global presence



Our values define us



Expertise

Largest dedicated optimisation development team in the industry
Average employee seniority: 10 years



Commitment

100% successful implementations since day 1



Collaboration

100% of our clients serve as references



Long-term vision

30% of our resources allocated annually to R&D

HASTUS suite for public transport

HASTUS suite for public transport

Mass-transit-specific

Across key processes

Multimodal

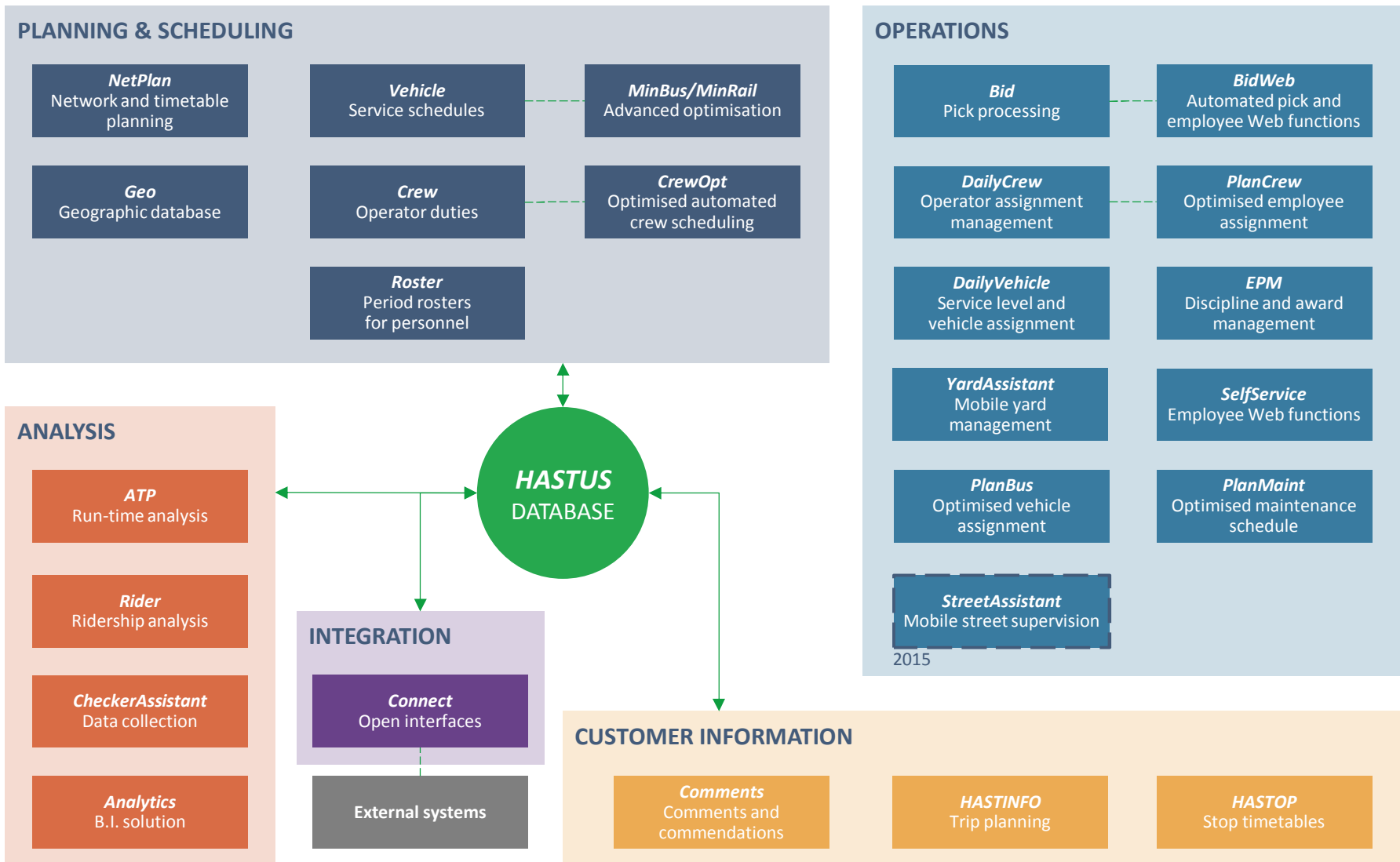
Fully integrated

Optimisation-oriented

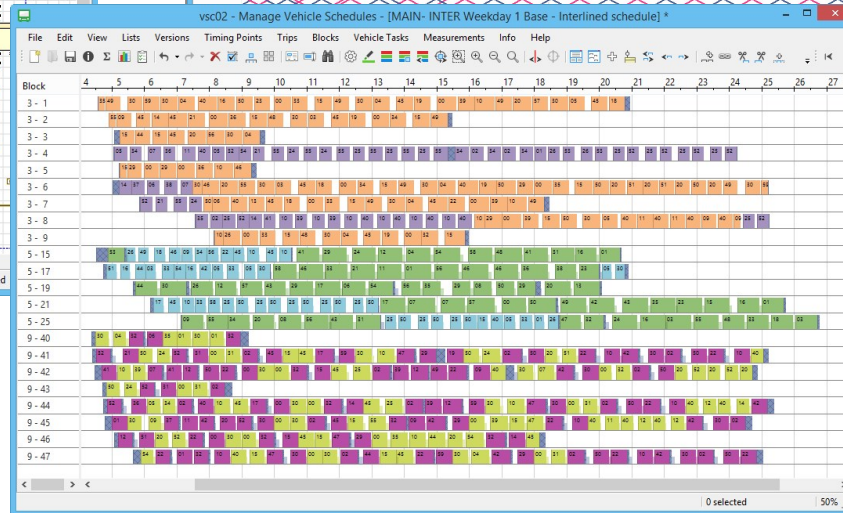
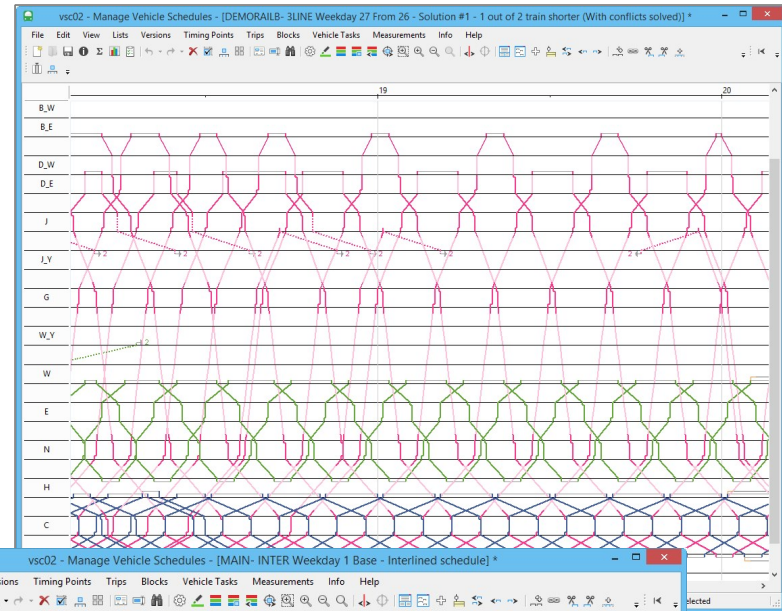
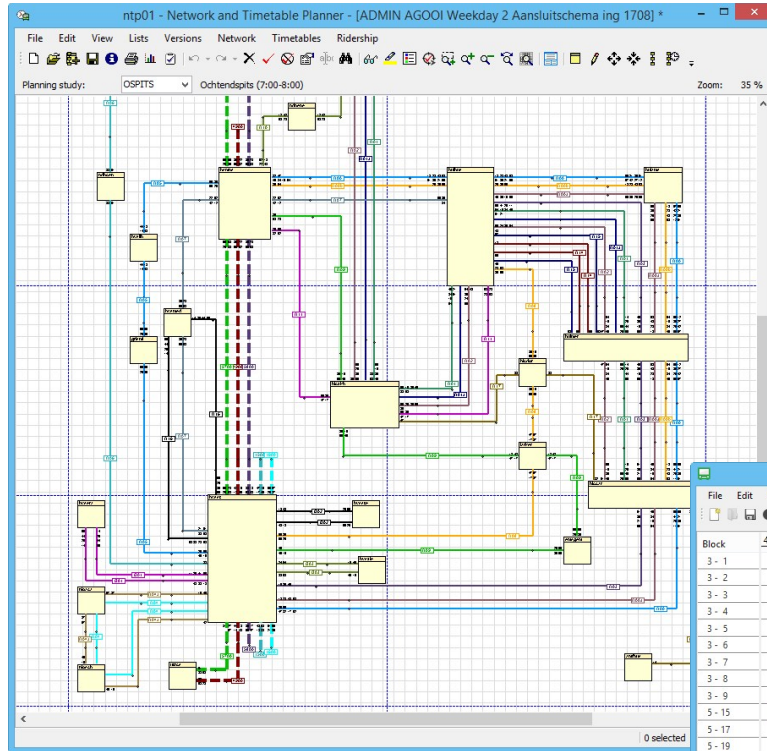
Updated yearly



HASTUS architecture



Planning & Scheduling



Case study: Trip shifting optimisation

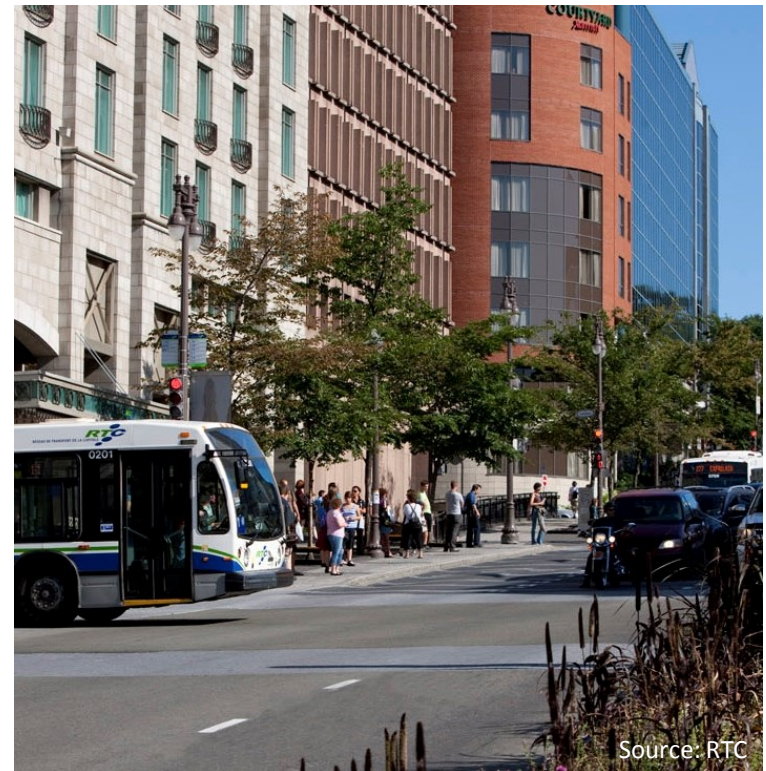
RTC, Québec City, Canada: 450 buses

Challenge

- Minimise number of vehicles needed during rush hour, while maintaining same service quality

Benefits

- 5% fewer buses needed during that period (21 buses)
- \$430 k in maintenance savings
- \$330 k in wage savings



Operations & customer information

The image displays a collage of three screenshots related to operations and customer information:

- Top Left:** A screenshot of a desktop scheduling application titled "dcs03 - Manage Daily Schedules - [3 - 14/11/2014 Friday - MAIN - Generated planning]". It features a grid showing employee schedules for various employees (e.g., Beumer, Madelaine, Paulin, Kennan, Kropf, Werner, Bunde, Stanton, Sesco, Mohammed, Ogdien, Ian, Feehan, Jazmine, Troia, Piper, Fairfax, Daryl, Corpuz, Charlie, Stockman, Roman, Mallery, R, Woltz, E, Teer, R, Boden, S, Luevano, A, Wisdom, D, Cisco, V, Moyle, H, Tolson, S, Rorick, C, Hauge, M, Grindle, M, Roker, E, Kearley, G) across days of the week. The interface includes a menu bar with options like File, Edit, View, Lists, Pieces, Workdays, Assignments, Employees, Trips, Blocks, Vehicles, and Help. A sidebar on the right shows details for employee 1001, Sesco Mohammed, including his name, date of birth (14/11/2014), and contact information.
- Top Right:** A screenshot of a mobile application interface showing a transit route. It displays a map with a blue line indicating the route, starting from "1628 48 Avenue Southwest, Calgary, AB T2T 2S8, Canada" and ending at "1 Centre B Street Northwest, Calgary, AB T2K 0V7, Canada". The app shows a travel time of 48 minutes (including a 7-minute walk) and provides details for the bus route, including stops and schedules.
- Bottom Center:** A screenshot of a mobile application interface titled "GIRO SelfService". The app displays a list of menu items: Employee Messages (0), My Work, Absences, Employee File, Work Exchanges (0), and Work Exchange Forum. The app is shown on a smartphone screen.

Case study: Process streamlining

STIB, Brussels, Belgium: 500 employees

Challenge

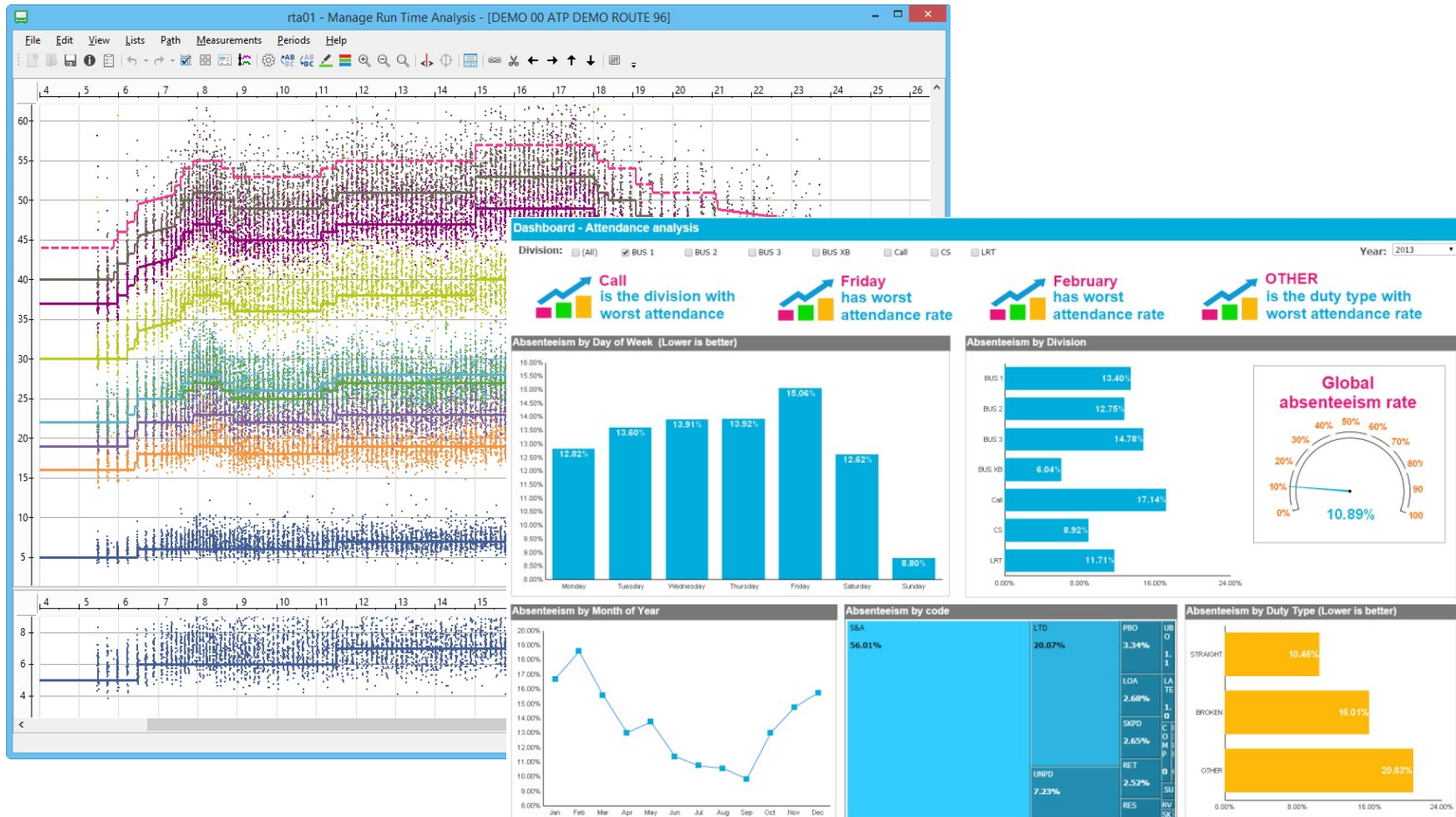
- Streamline work-assignment processes with *PlanCrew*'s implementation

Benefits

- Optimised driver assignments, meeting quality requirements and considerations of medical and social constraints
- Significant time saved with automated functions



Analysis & Integration



Case study: Calibration

Transpole, Lille, France: 400 buses

Challenge

- Increase on-time performance by calibrating run times for the season

Benefits

- 3.5% increase in speed
- Improved punctuality on early arrivals
- Reduced number of vehicle-blocks on high-frequency routes



Recent innovations

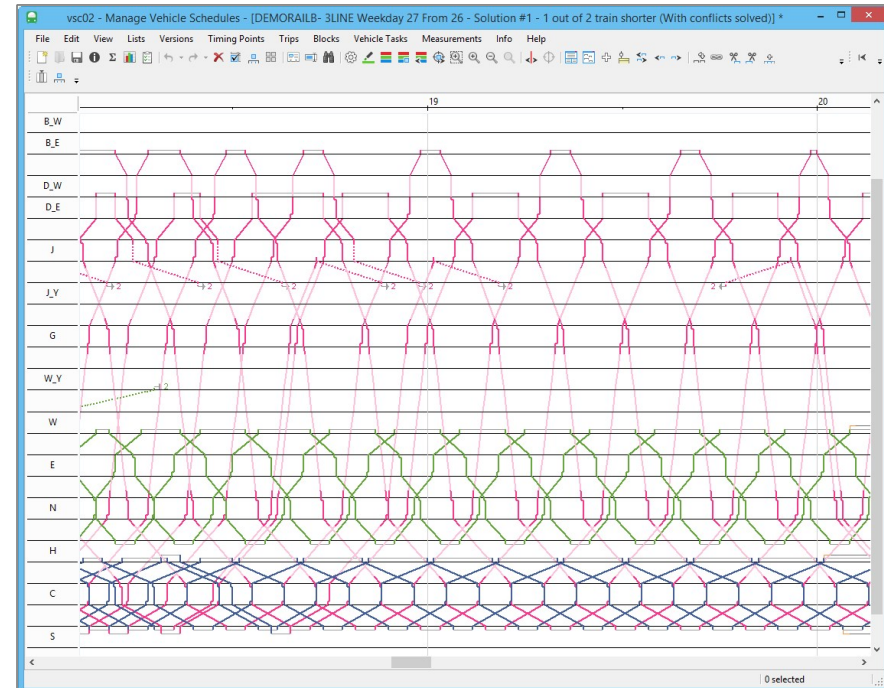
HASTUS-Rail specific features

Network attributes

Disruption management
(workforce & rescheduling)

Yard management

Fleet allocation



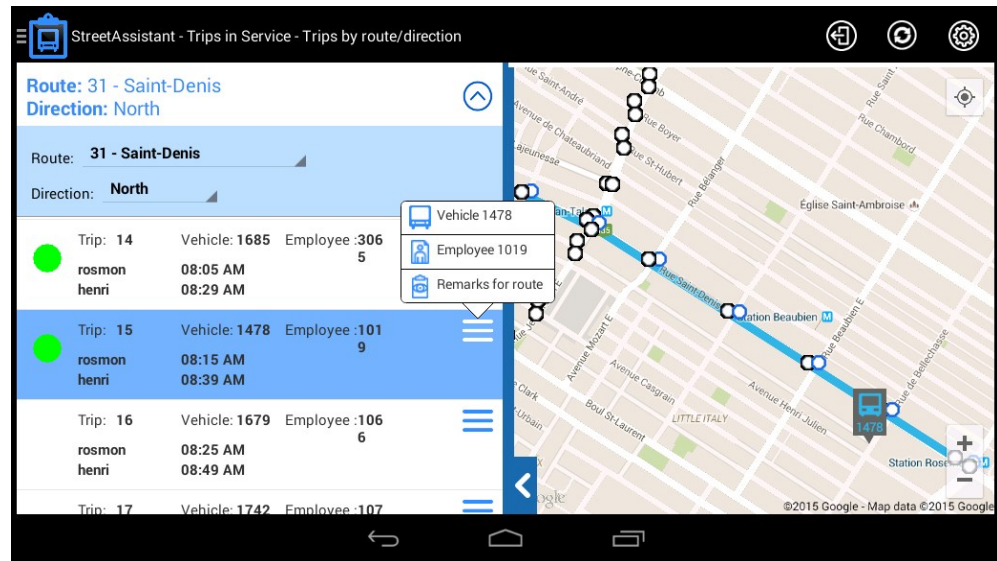
Mobile solutions

Operations supervision

Train-station staff

Yard management

Employees self-service



Fleet & maintenance optimisation

Bus-yard optimisation

Manpower planning

Maintenance activities

Recovery algorithms in daily operations



Some challenges ahead

New vehicle types

How to adapt and optimise public transport networks to account for new vehicle types?

What about autonomous vehicles?

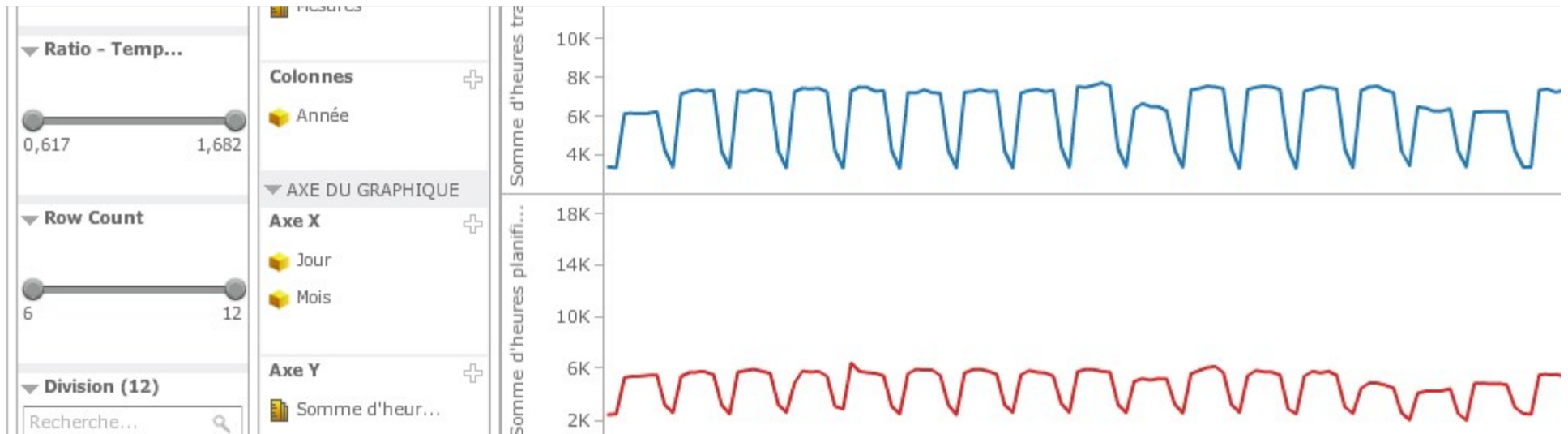


Source: Nova Bus

GIRO

Data valorisation

How to turn massive amounts of data into real decision-making tools for agencies and riders?



New transportation models

How to facilitate the coexistence of traditional and new models to improve overall mobility?



Source: BIXI

“To raise new questions, new possibilities,
to regard old problems from a new angle, requires
creative imagination and marks real advance in science.”

- Albert Einstein

A photograph of two young women standing on a train platform. The woman in the foreground is wearing a green striped top and a pink floral scarf, smiling broadly. The woman behind her is wearing a red and white striped headband and is waving her hand. The background shows a train with a '2' sign and a station with buildings and trees under a cloudy sky.

Thank you

Alexandre Savard, PMP
Senior Account Manager
alexandre.savard@giro.ca

www.giro.ca

+1 514.383.0404

[linkedin.com/company/GIRO](https://www.linkedin.com/company/GIRO)

GIRO

Improving efficiency at every turn

