



Société de transport de Montréal (STM)

Improved operations control and real-time passenger information features allow for higher service quality

init
The Future of Mobility

Public transport that attracts passengers is all about a positive customer experience. In the age of digitalization, passengers' requirements have changed dramatically. They expect smart mobility offerings and accessible real-time information. As an ambitious public transport provider, the Société de transport de Montréal (STM) responded to these demands by setting up a sophisticated operations control and integrated real-time passenger information system. The project called iBUS is a direct initiative in Montreal's mission to become a Smart City.

Société de transport de Montréal (STM)

500 km² operating area

1,950 vehicles

219 daytime and 23 nighttime service lines

More than 415 M passengers a year

Enhanced support of dispatchers, optimized workflows and up-to-date real-time passenger information increase service quality and operational efficiency.

The task

To meet the expectations of today's passengers, Société de transport de Montréal (STM), the provider of public transport services for Montreal, decided for the implementation of an ITS project called iBUS. The project aims to deliver updated passenger information at all times. Adjustments to the schedule, caused for example by service disruptions, become public in real time to allow riders to make the best decision while en route. Of course, reliable information is also available before the trip. Further important goals of STM were to improve punctuality and regularity of the bus service, as well as provide greater safety aboard buses.

The solution

At the core of the system is INIT's Intermodal Transport Control System, MOBILE-ITCS. 27 workstations situated in two control centers – a primary control center and an emergency control center – allow STM to efficiently manage operations within the city of Montreal.

STM utilizes intelligent planning software from INIT for reliable data provisioning, as well as a workflow and incident management solution. Automated route data detection software will deliver more accurate stop positions, while a database-supported device management system will improve data supply and simplify the monitoring of operational devices. Mass data is transferred by WLAN. A digital P25 radio system set up in three different locations is used for voice radio. The subcontractor Harris Canada Systems Inc. supplies the radio systems for INIT, the general contractor

on this project. The INIT Voice-over-Cellular solution (VoIP via mobile phone network) is implemented for fallback scenarios.

Bus equipment

More than 1,900 vehicles (standard, articulated, and mini buses as well as service vehicles and tow trucks) are equipped with the latest INIT technology. The core of the vehicle equipment is the on-board computer COPILOTpc2 as the IT and communication platform in combination with the mobile data terminal TOUCHmon. It determines the vehicle's location, calculates the current schedule adherence, and controls the peripheral vehicle devices automatically. COPILOTpc2 also serves as the interface to the voice and data radio systems. The integration of the radio system with the ITCS increases the safety of drivers and passengers remarkably. Now, drivers can alert the control center about an emergency situation making it possible for the dispatchers to listen in to what is going on in the vehicle.

The next step displays PIDmobil4 and the power amplifiers PAmobil2 provide clear passenger information on-board the vehicles. In addition, the entire bus fleet is equipped with INIT's Automatic Passenger Counting solution MOBILE-APC.

1,950

vehicles are equipped with the latest
INIT technology.

Increasing the customer experience

Before starting the iBUS project, STM offered only timetable information to their passengers. With the new INIT system, passengers can easily access online information about actual departure times of upcoming buses. Smartphone apps will soon follow. In addition, on-board announcements and displays ensure that the passengers are kept up-to-date: an immediate service improvement.

About 90 INIT passenger information displays (PIDmatrix) are installed at the most important stops throughout



All STM buses are equipped with INIT's Automatic Passenger Counting system MOBILE-APC.



In the future, passengers will be informed in real time on arrival times. If schedules are changed or the bus is delayed for some reason, we are able to inform the passengers accordingly.



Nadine Bernard
STM Manager of Communications,
Marketing and Public Affairs

Montreal, as well as at the metro stations to keep passengers continuously informed. The displays have excellent legibility in all lighting conditions due to their brightness adjustment and allow clear presentation of graphics and text in various fonts and character heights.

All passenger information data is processed automatically via all connected information channels and to external partners via a central management tool called MOBILE-EXCHANGE.

Increasing the performance

Due to the integrated system approach, the actions carried out in the ITCS are transmitted in real time to all subsequent systems (vehicle, passenger information, etc.) and are taken into consideration accordingly. Dispatchers are provided the means to keep buses more punctual and manage incidents much more efficiently than in the past. For instance, an ad hoc detour generated in the control center is automatically transferred to the vehicles and displayed on the driver terminal giving the bus driver turn-by-turn instructions on the detour by means of the built-in navigation function. In addition, information on delays – and newly created or no longer serviced stops – is distributed automatically into all passenger information systems.

90

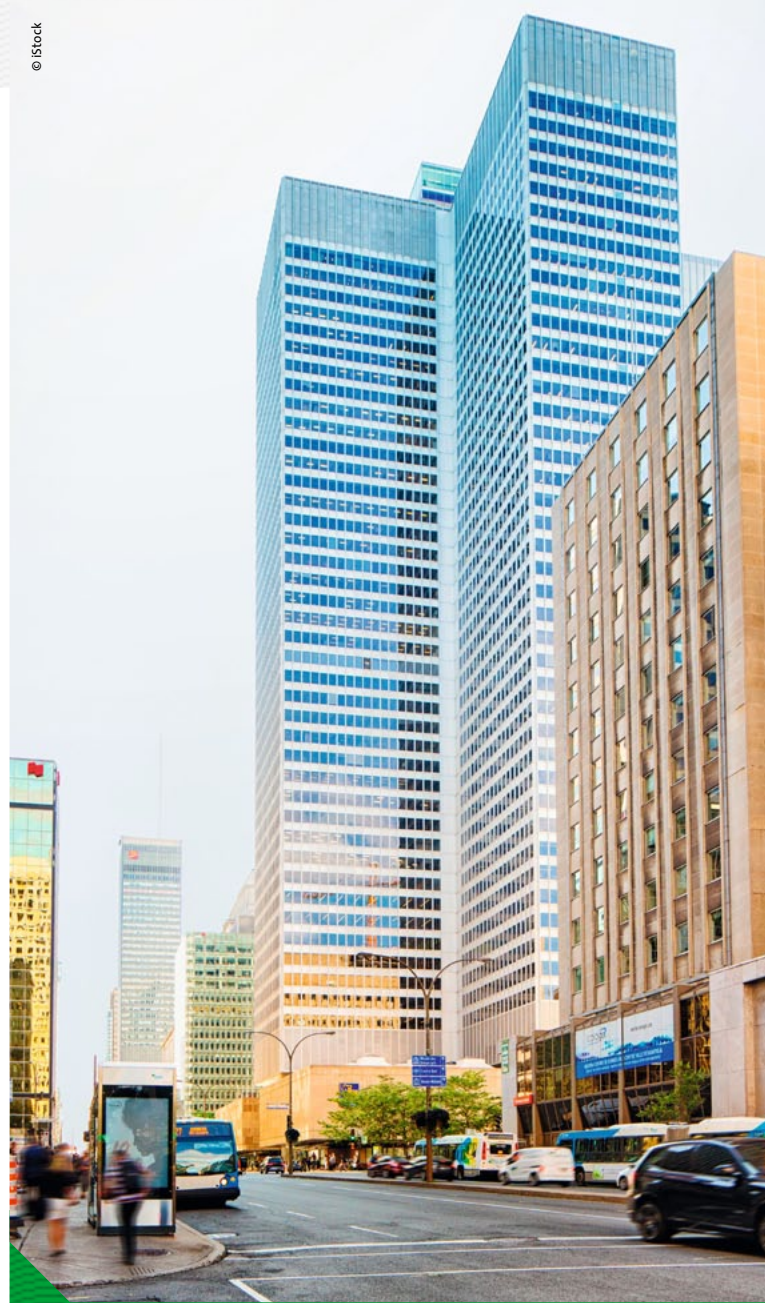
INIT passenger information displays (PIDmatrix) are installed at the most important stops as well as at metro stations.

The complex work of the dispatcher and drivers is furthermore supported by some enhancements of the INIT system that are deployed for the first time in Montreal. Workflow advancements allow to forward information more efficiently and precisely in a timely manner. Therefore, the on-board computer features forms especially designed for the 8.4 inch touch-screen of the driver terminal. This includes a guideline for the security check of the vehicle which the driver has to confirm before starting his shift.

The form-based incident management system used by the dispatchers goes even one step further. The form allows not only for an automated processing of information, but also presents dispatchers recommendations for the dispatching measures that should be taken according to the STM standard scenarios. Moreover, MOBILE-ITCS allows STM to integrate the bus service better with the metro and commuter trains.

With the comprehensive INIT tool for statistical evaluation MOBILEstatistics STM receives deep insights into their performance. Consequently, it becomes much easier to plan the use of vehicles more efficiently, adapt lines or frequencies to the actual demand, or make schedules more robust, thereby increasing the punctuality of service.

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STM's passengers now benefit from a better service quality.

The conclusion

With the iBUS project, STM has improved their operational efficiency and service quality considerably. Dispatchers receive all information to keep the service on time and running smoothly. Drivers are supported by the on-board computer that provides navigation assistance. And passengers are always in the know about the next bus, delays and travel alternatives – at home, on the road, at the stop and on-board the buses. Overall, all these improvements add up to higher quality service offerings.

The project at a glance

SOCIÉTÉ DE TRANSPORT DE MONTRÉAL

1,950 vehicles

2 control centers

27 workstations

90 passenger information displays

Intermodal Transport Control System

Automatic Passenger Counting system

Incident management

Workflow management

1 central hub for schedule and RTPI information

Real-time Passenger Information (RTPI) via stop display, internet, apps and on-board the buses

TASK

- Set-up of an integrated operations control and real-time passenger information system that allows to increase service quality while managing operations more efficiently.

SOLUTION

- An integrated solution that optimizes workflows and data processing through all operational tasks. Enhanced supporting tools for dispatchers and drivers ensure smooth operation and on-time service. Passengers are kept up to date with reliable passenger information.

ADVANTAGES

- Increased punctuality
- Supported incident management
- More efficient information management and workflows
- Enhanced passenger information
 - at stops
 - on the internet
 - on smartphones
 - on-board buses

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- ◆ Planning & Dispatching*
- ◆ Ticketing & Fare Management*
- ◆ Operations Control & Real-Time Passenger Information*
- ◆ Analyzing & Optimizing*

and they also benefit from our proven Service & Maintenance support.

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