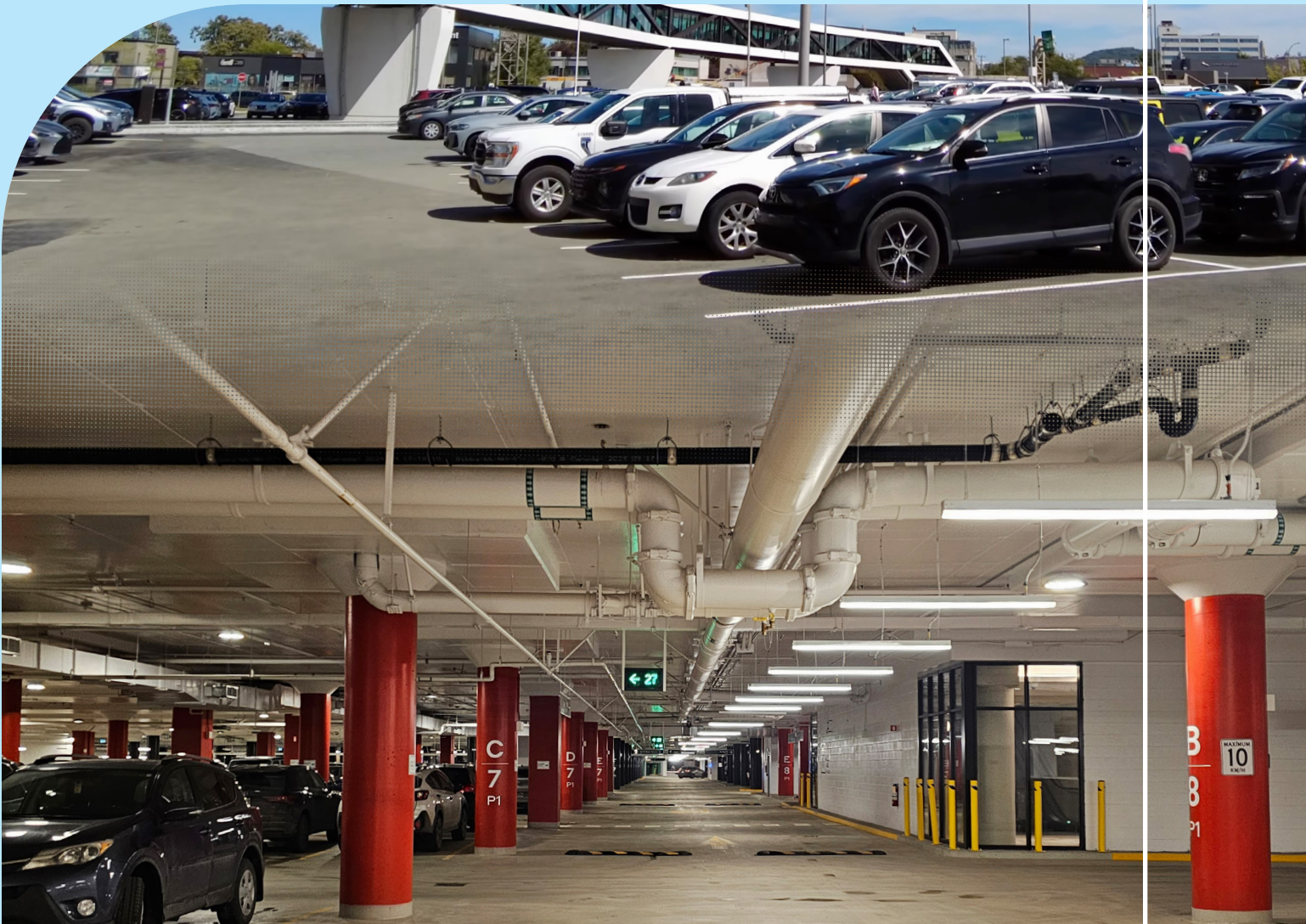


Smart Parking Innovation for a Shopping Mall:

Simplifying Operations with a Centralized Management Platform



1 In Short

Context

Royalmount, a **\$7 billion** luxury shopping center developed in Montreal by Carbonleo, stands out as one of the most ambitious and luxurious commercial projects in North America.

With more than **4,000 spaces spread over two interior levels and five exterior zones**, parking management was a major challenge requiring an efficient and scalable solution.

To meet these requirements, Carbonleo opted for **Spatium**, a smart parking management platform. This centralized solution optimizes parking operations by integrating various third-party partners, guaranteeing fluid management and efficient data consolidation.



4,000 spaces



2 indoor levels



5 outdoor areas



2 Partners

To deliver a seamless and optimized parking experience, Spatium integrates best-in-class third-party technologies, including solutions for payment processing, AI-powered occupancy tracking, and real-time guidance.

By uniting these systems, Spatium creates a fully **synchronized parking ecosystem** ensuring smoother operations.

The project involves the following key third-party integrations:



Parknet

A comprehensive payment and access management system, handling subscriber accounts, dynamic pricing strategies, discounts, and gate control, along with real-time parking guidance on indoor screens.



Parquery

AI-powered analysis of 1,600+ camera feeds monitors indoor parking occupancy in real time while ensuring full compliance with data privacy standards.



InfoTraffic

A real-time navigation and guidance system that dynamically updates parking availability and driving directions.

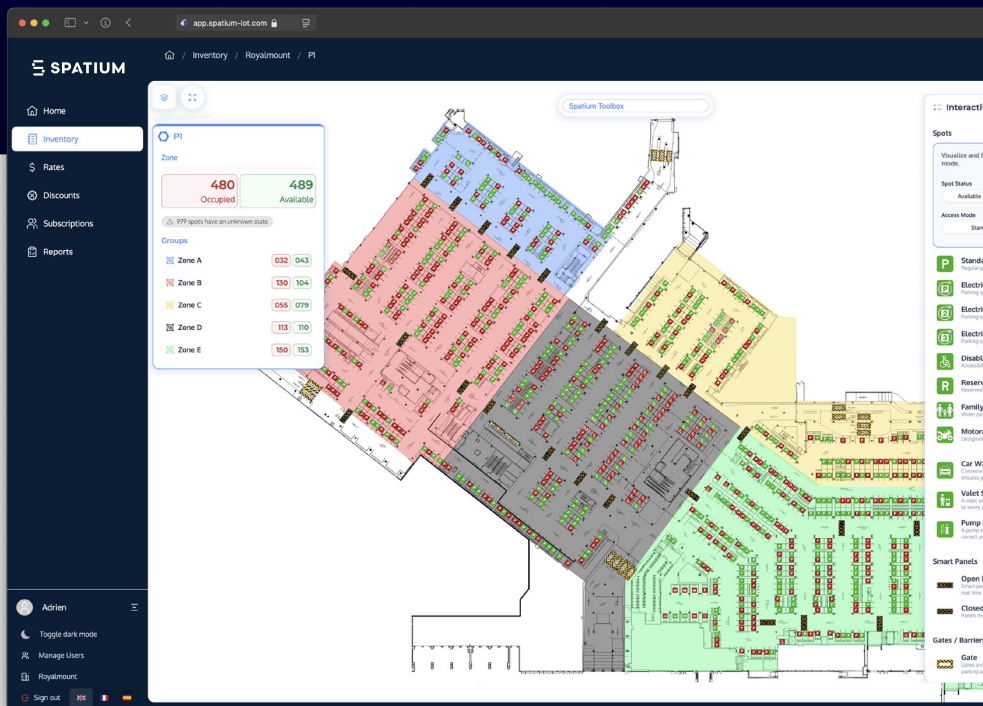
3 Potential

Configurable and Customizable Solution

The Spatium platform optimizes operational control and cost efficiency by centralizing all parking management functions into a single, intuitive web platform.

Instead of using separate systems for **payment, guidance, occupancy, barriers, and reporting, Spatium unifies them into a configurable and customizable solution.**

This streamlined approach simplifies operations, lowers costs, and improves parking performance, empowering operators to make smarter, data-driven decisions.



A Future-Proof Management Platform

Beyond parking management, Spatium lays the foundation for potential future smart infrastructure enhancements. While these features are not currently implemented, its scalable, cloud-based architecture ensures the project **remains adaptable to evolving technologies and requirements.**

This flexibility allows for the easy integration of advanced functionalities, supporting long-term growth and innovation.

Potential future possibilities include:



Dynamic Lighting Control

To improve energy efficiency
by up to 30%



Real-Time Air Quality Monitoring

To ensure optimal
ventilation management



Sound Recognition Security Systems

For detecting glass breakage
or other abnormal sound



EV Charging Stations

For electric vehicle
charging management

4 Project Development

From Insight to Implementation

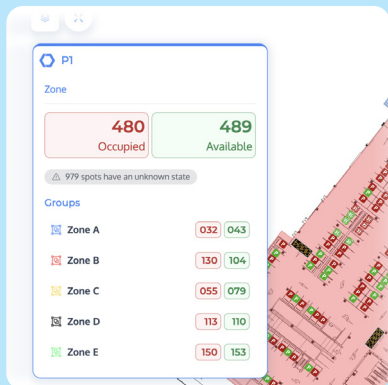
Carbonleo's objective was to provide Royalmount with a smart and scalable parking system, capable not only of **managing a large number of spaces**, but also of integrating essential systems such as **barriers, LPR cameras, pay stations, and dynamic signage** to improve the user experience and simplify operations.

It was with this in mind that Spatium was chosen.

Using centralized management based on IoT, the platform ensures real-time control, improved fluidity of operations and optimized management of payments.

By integrating several third-party systems, Spatium enables precise occupancy monitoring, dynamic vehicle guidance and automated access, guaranteeing a seamless experience for operators and visitors alike.

Key technological integrations:

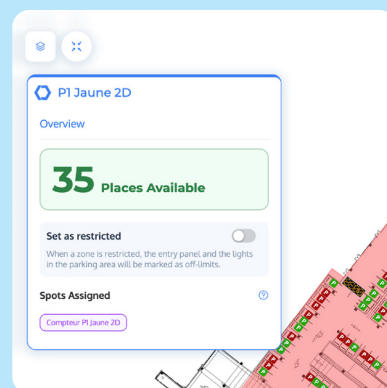


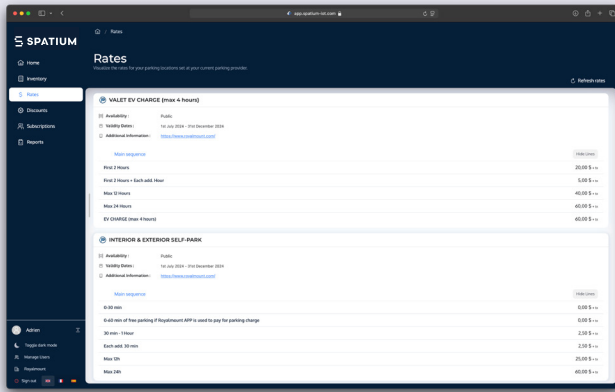
Space Availability Tracking

Real-time monitoring of parking spaces is achieved using the already installed 4-head security cameras. This approach significantly reduced costs by eliminating the need for additional equipment while providing accurate occupancy data across all parking levels.

Dynamic Vehicle Guidance

Digital signage and LED indicators display real-time space availability, guiding drivers efficiently to vacant spots.



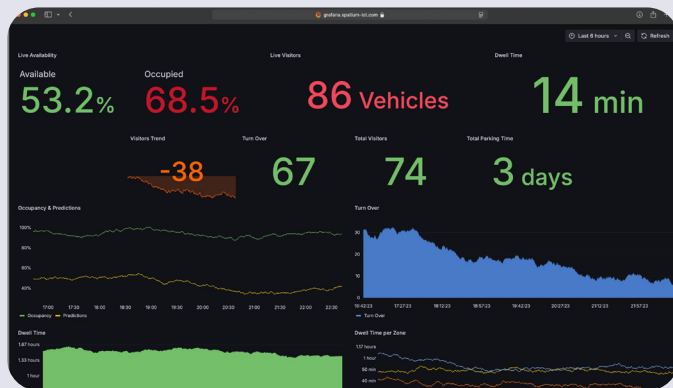
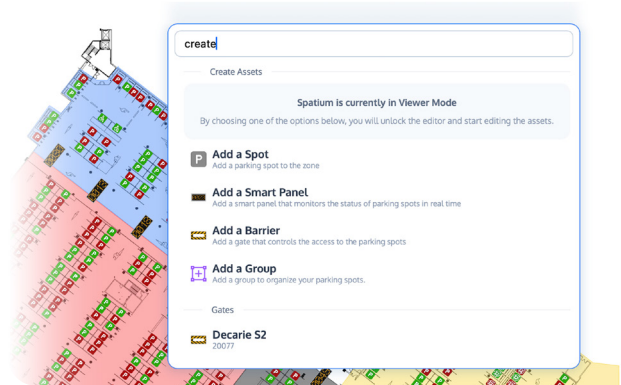


Integrated Payment Management

Unified payment systems, subscriber management, and pricing strategies through Parknet for on-site terminals and mobile apps.

Access Management

Automated barrier control streamlines entry and exit while ensuring security. Operators can also adapt the use of parking spaces by creating custom groups or deactivating specific spaces based on their needs.

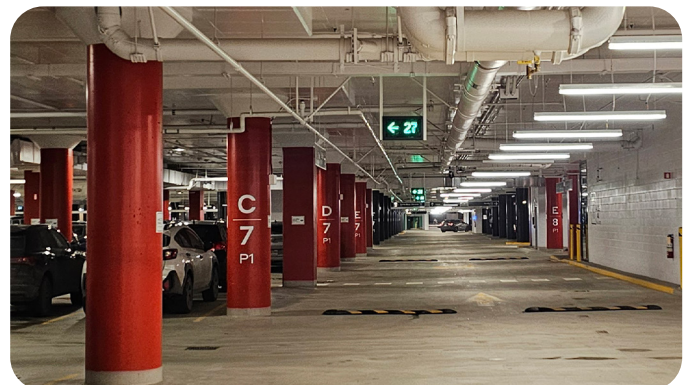


Parking Space Analytics

Real-time data on parking occupancy status, enabling better vehicle tracking and parking performance analytics.

Multichannel Availability Display

Real-time parking availability displayed on LED indicators, digital signage, and external advertising screens for maximum visibility.



A future-proof management platform

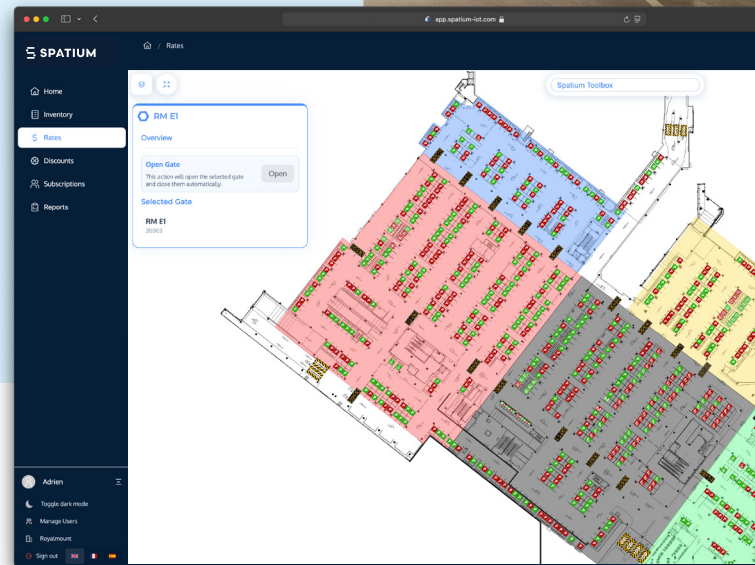
The Spatium platform provides advanced functionalities that enhance the parking experience for both drivers and operators at Royalmount.

Drivers Perspective

Drivers benefit from real-time data displayed on dynamic signs and guidance systems, helping them locate available spaces quickly and efficiently.

Operators Perspective

Spatium centralizes parking management within a single, intuitive platform. Operators can manage all operations, including revenue, subscriptions, access, and users, through a unified interface. They also gain a comprehensive overview of zones and spaces, making it easier to monitor operations and make informed decisions. Proactive alerts help quickly identify anomalies and ensure smooth, efficient parking management.



ParkSmart Certification

Royalmount's parking facilities meet **ParkSmart** standards set by the IPMI and GBCI, a leading benchmark for sustainable, high-performance infrastructure.

This certification highlights the project's commitment to efficient resource management, proactive maintenance, and sustainable operating practices. It also recognizes strategies such as shared parking, operational optimization, and the integration of smart technologies, all supported by the Spatium platform.



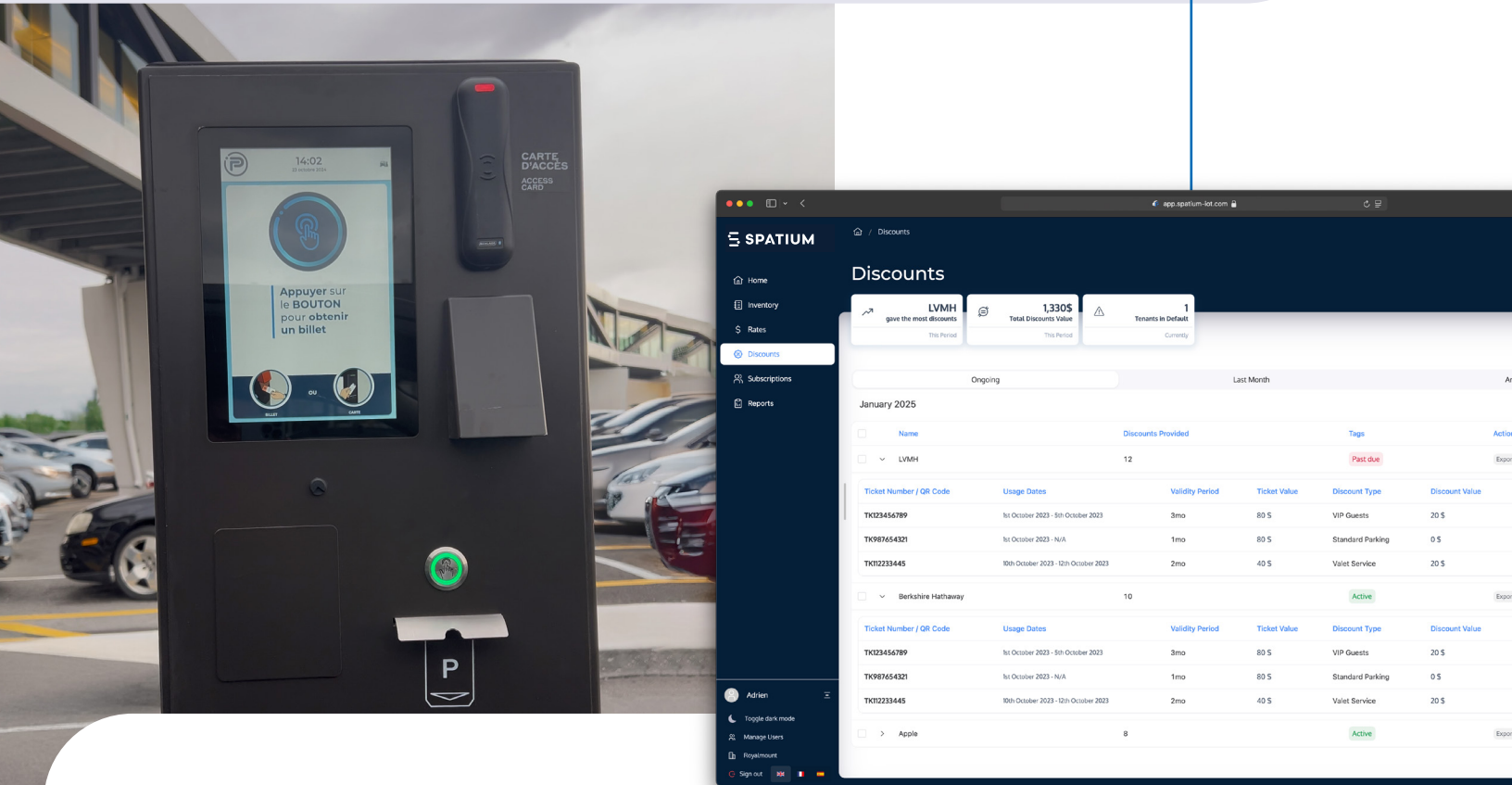
“A parking lot should not be seen as a compulsory location adjacent to an establishment, but rather as the first contact with the much sought-after clientele we want to welcome.

By integrating Parknet’s advanced payment and access management solutions with Spatium, Royalmount benefits from a fully centralized management system that streamlines the delivery of parking discounts, gate actions, dynamic pricing and secure transactions.

This seamless integration enables real-time promotions, increasing footfall and visit duration to the direct benefit of shoppers and retailers alike.

By making parking more accessible and rewarding, we help Royalmount enhance customer loyalty and maximize retail traffic.”

Joël Painchaud
General Manager
Parknet / Globatech



4 Results

Main Advantages of the System



Centralized Management Hub

Spatium consolidates all aspects of parking operations, including payment processing, access control, space allocation, and vehicle guidance, into a single cloud-based platform, simplifying management for operators.



Customizable Report Analysis

Spatium provides powerful tools to analyze occupancy and revenue data. Its predictive capabilities allow operators to forecast trends, optimize parking performance, and make data-driven decisions for even greater efficiency.



Proactive Maintenance Alerts

Spatium's proactive alert system notifies operators of equipment malfunctions or space status issues, reducing downtime and improving the overall reliability of the parking facility.



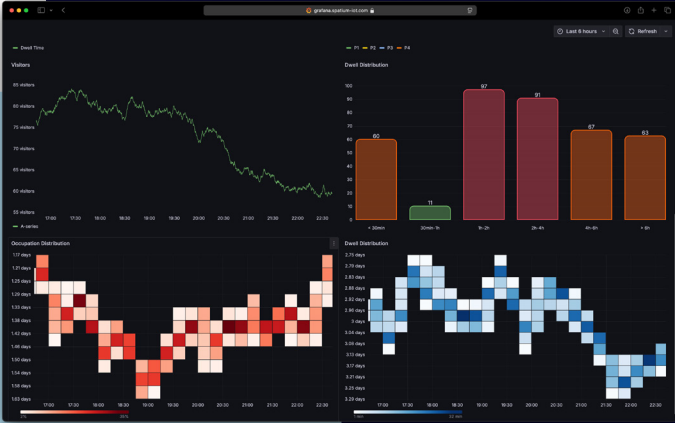
Enhanced Real-Time Monitoring

The Spatium platform provides real-time tracking of parking space occupancy using integrated cameras and AI models. This feature helps reduce congestion by directing drivers to available spaces more efficiently.



User-Centric Experience

The platform offers intuitive wayfinding, seamless payment processing, and real-time parking availability updates, enhancing convenience and minimizing stress for visitors.



Key Takeways

1 Efficiency Gains

The implementation of the Spatium platform has drastically reduced search times, leading to smoother traffic flow and enhanced customer satisfaction. Real-time data and predictive analytics enable proactive maintenance, minimizing downtime and ensuring uninterrupted service.

2 Revenue Growth

Adjusting parking pricing to be more accessible has increased customer traffic, attracting more visitors to the parking facilities and directly boosting shop revenues. Advanced analytics identify usage patterns and optimize parking availability, further driving foot traffic and enhancing tenant profitability.

3 Sustainability Milestones

Royalmount's parking system aligns with Parksmart certification standards, showcasing a commitment to eco-friendly practices. Energy-efficient infrastructure and locally sourced materials further reinforce the project's sustainability efforts.

4 Enhanced Customer Experience

Visitors benefit from intuitive wayfinding, real-time availability updates, and seamless integration with value-added services such as valet parking. These features contribute to Royalmount's vision of delivering a premium shopping and entertainment experience.

"This project showcases our innovative approach to smart parking solutions. With Spatium serving as the single management platform for multiple third-party partners, we're seamlessly centralizing real-time occupancy data, flexible pricing, and business intelligence into one cohesive platform."

Adrien Orceau
Product Owner
Spatium

