# Pulsa

# A Profitability Wake-Up Call for QSR Supply Chain Executives:

## Is CO2 Management Undermining Your Margin Goals?

**EXECUTIVE WHITE PAPER**

How Corporate QSR Operators Can Optimize $CO_2$ Tank Management to Enhance Profitability and Sustainability

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# Introduction

## Navigating Economic Volatility Through Operational Efficiency

In today's unpredictable economic climate, quick-service restaurants (QSRs) face mounting pressure to identify and implement cost-saving measures across all facets of their operations. With supply chain costs rising and profit margins tightening, introducing new efficiencies to overlooked areas has become imperative toward achieving optimal financial performance.

One such critical yet often overlooked component is carbon dioxide ($CO_2$) management. Essential for beverage carbonation and various operational functions, $CO_2$ is mission-critical to consistency and customer satisfaction. However, inadequate oversight of $CO_2$ supply and usage leads to unforeseen expenses and operational disruptions. This white paper explores the hidden challenges of $CO_2$ management in QSR operations and presents strategic solutions to transform this potential liability into a source of enhanced profitability and sustainability.
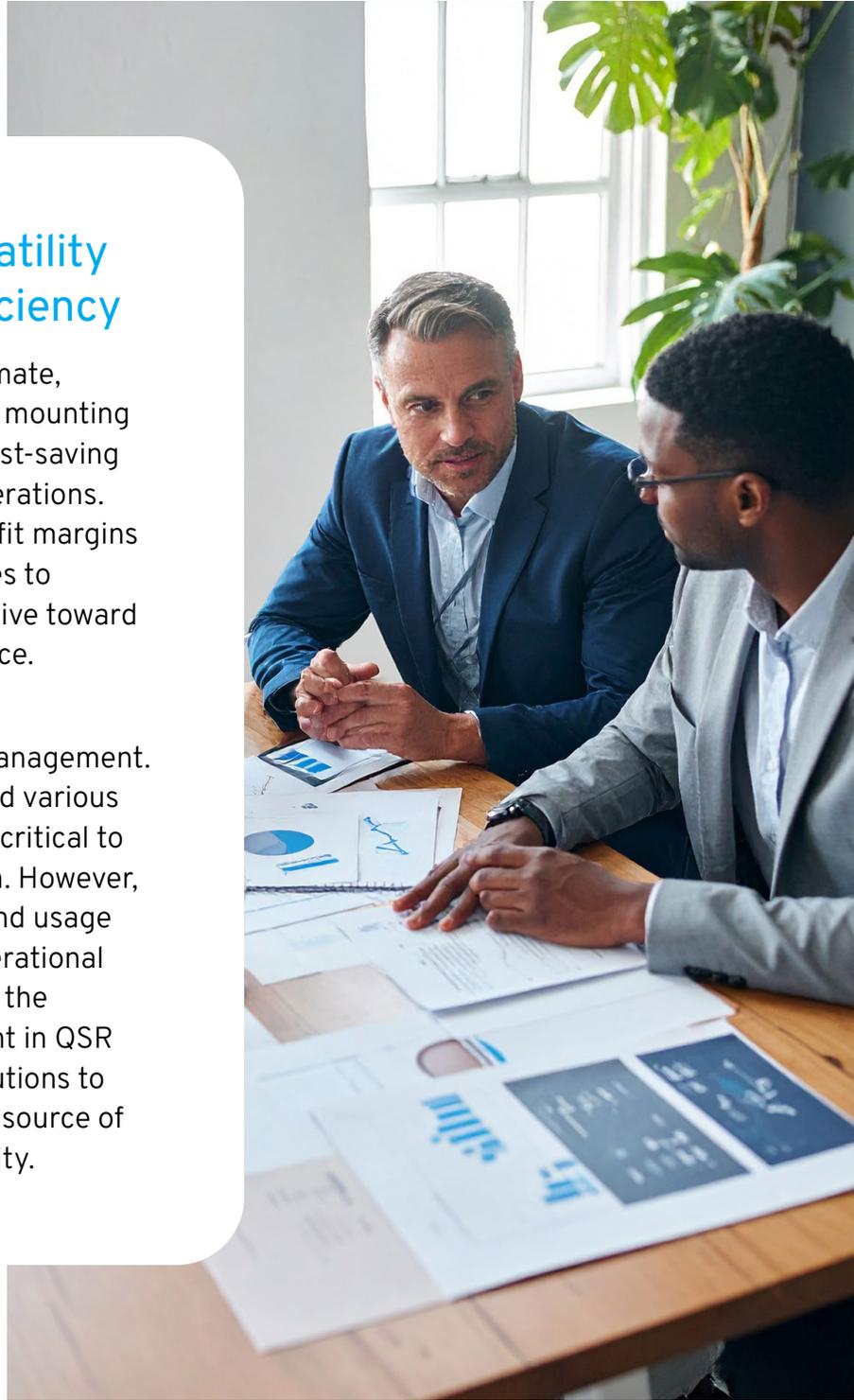
# The Hidden Challenges of CO2 Management in QSR Operations

Despite being mission-critical to carbonation and select kitchen systems, the vast majority of CO2 tanks in the field remain unmanaged. Most QSR owners have no centralized visibility into tank levels, usage, waste, or leak events. Even this critical information is likely not being tracked by your supplier. From the QSR's standpoint, the CO2 supply is untracked, unverified, and vulnerable to profit-draining inefficiencies.

CO2 is the only critical asset in the QSR back-of-house that's not measured or monitored. That's a serious liability—especially at scale.

# What's at Risk Without CO2 Management

The lack of visibility into CO2 usage across QSR locations produces hidden costs and operational vulnerabilities that chip away at profitability and consistency. Without a proactive CO2 strategy in place, QSR brands face the following risks:

**!** **UNPLANNED DOWNTIME = LOST REVENUE & BRAND DAMAGE**
CO2 runouts immediately interrupt beverage service, often for longer than expected. This results in lost transactions, unhappy customers, and damage to brand reputation. This is especially true when carbonation quality falls below expectations during peak hours.

**!** **EMERGENCY DELIVERIES = INFLATED OPERATIONAL COSTS**
When stores run out of CO2 unexpectedly, suppliers charge premium fees for emergency deliveries. These unbudgeted expenses erode margins and are a hidden cost of reactive, rather than strategic, supply management.

**!** **MANUAL HANDLING = LABOR INEFFICIENCIES & SAFETY LIABILITIES**
Store teams often handle CO2 tanks manually, whether monitoring levels or swapping backups. This not only affects labor costs and trained employee scheduling, but also exposes employees to injury risk—especially when backup tanks are improperly stored or transported.

**!** **INCONSISTENT QUALITY = LOWER CUSTOMER RETENTION**
Even minor variations in carbonation levels can lead to flat drinks and poor guest experiences. Inconsistent beverage quality undermines customer loyalty and can quietly reduce return visits across locations, damaging your brand reputation.

**!** **NO DATA = MISSED OPPORTUNITIES TO OPTIMIZE**
Without centralized CO2 usage data, operators are in the dark. They can't compare store-to-store consumption, negotiate better delivery schedules, or hold suppliers accountable. This lack of insight limits efforts to scale efficiencies or unlock savings.

# What Can Be Saved with Remote CO2 Monitoring

A modern, network-wide CO2 tank monitoring solution gives QSR operators the power to eliminate waste, increase consistency, control costs at scale, and avoid costly damage to their reputations. Here's how:

✓ **CONTROL & TRANSPARENCY = FEWER SERVICE INTERRUPTIONS**
Real-time, remote tank monitoring gives corporate and franchise operators complete visibility into every tank across every store. With automated low-level alerts, stores can act before a runout happens, eliminating unplanned (costly) downtime and improving service continuity.

✓ **DATA-DRIVEN OPTIMIZATION = FEWER SUPPLIER VISITS, LOWER FEES**
Historical usage trends allow brands to reduce unnecessary deliveries and negotiate smarter contracts—especially when partnering with a smaller group of preferred suppliers using telemetry.

✓ **LABOR EFFICIENCY = LESS MANUAL INTERVENTION**
By removing the need for manual tank checks and swaps, store staff stay focused on front-of-house operations—not back-of-house logistics. This helps reduce labor waste and improves day-to-day efficiency.

✓ **QUALITY ASSURANCE = BETTER GUEST EXPERIENCE & REVENUE RETENTION**
Standardized CO2 management ensures consistent drink quality across every location. That consistency supports customer satisfaction, brand trust, and higher average ticket values.

✓ **STRATEGIC CO2 CONTROL = CORPORATE-WIDE FINANCIAL VISIBILITY**
When remote CO2 monitoring is deployed system-wide, corporate teams can consolidate cost savings, calculate waste reduction, and report on sustainability and efficiency improvements—store by store, quarter by quarter.

# Financial Impact:
## What This Means in Real Dollars

Corporate QSRs that implement a centralized $CO_2$ monitoring strategy report significant financial upside. Collectively, these factors contribute to significantly improved profit margins and a stronger financial position for QSR operators.

**Up to $10,000/year per store** in avoided emergency costs and delivery inefficiencies[1]

**30% reduction in supplier visits,** improving sustainability and cost-per-delivery[3]

**Up to $13,000/year per store** in retained revenue from preserving beverage quality and avoiding service loss[2]

**Improved contract negotiation** leverage due to usage transparency

For a 100-location brand, this can add up to
**$2.3M per year in profitability improvements**
and $11.5 million over 5 years.

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[1] International Franchise Foundation and Franchise Brokers Association. Factors in monthly revenue per store, drink revenue percentage, and average downtime.

[2] Moneygeek, Factors in lost revenue per store during downtime, emergency service fees, gas delivery service fees, tank fill loss, reputation loss, and lost business due to future avoidance post downtime.

[3] Pulsa internal modeling, based on industry averages and customer-reported outcomes. Modeled on downtime avoidance, labor optimization, delivery reduction, and revenue preservation from customer retention.

# Case Study: Real-World Success in CO2 Management

Consider the experience of a multi-location QSR chain that implemented a remote CO2 monitoring solution:

**CHALLENGE:**
Frequent CO2 runouts led to service disruptions and increased operational costs.

**SOLUTION:**
Deployment of a remote tank monitoring system providing real-time insights into CO2 levels and consumption patterns.

**OUTCOME:**
The chain achieved a significant reduction in emergency deliveries, improved staff efficiency, and enhanced beverage quality, resulting in measurable cost savings and increased customer satisfaction.

*(Documented by Pulsa and representative of Pulsa customers across the QSR industry.)*

*We all know that CO2 drives a lot of our beverages in our restaurants. No CO2, No Drinks! We love this monitoring system primarily since it offloads the burden from our crew. This system alerts us when we are low on CO2. I love it when technology can be part of our team that keeps us focused on our customers and not the equipment."*

**RICK SOLER**
Asset Protection Supervisor
Stagg Restaurants, LLC/ McDonald's

# The Imperative for a Unified CO2 Management Strategy

For QSR chains, particularly those with a mix of corporate-owned and franchise locations, establishing a unified CO2 management strategy is now a critical business initiative. Such a strategy involves standardizing CO2 procurement, storage, monitoring, and usage across all outlets. **Key considerations include:**

- **SUPPLIER LEVERAGE:** Partnering with one or two nationwide CO2 suppliers that offer the same real-time, remote tank telemetry can streamline operations and provide leverage in contract negotiations. Centralized data on CO2 consumption enables corporate teams to negotiate favorable pricing and service terms, leading to significant cost reductions.

- **OPERATIONAL CONSISTENCY:** Standardizing CO2 equipment and monitoring systems across all locations ensures uniformity in beverage quality and operational procedures. This consistency enhances customer satisfaction and simplifies staff training processes.

- **RISK MITIGATION:** Implementing remote monitoring reduces the risk of unexpected CO2 shortages, which can disrupt service and harm the brand's reputation. Proactive alerts allow for timely interventions, maintaining seamless operations.

- **EVALUATING CO2 USAGE ACROSS STORE OPERATIONS:** Beyond beverage carbonation, CO2 and high-grade air are utilized in various store operations, from drive-through window mechanisms to equipment like frappe machines.

Transitioning to CO2 in areas traditionally using medical-grade air **offers several advantages:**

- **COST EFFICIENCY:** CO2 is generally more cost-effective than medical-grade air. By standardizing the use of CO2, operators can achieve savings through bulk purchasing and reduced equipment maintenance costs.

- **SIMPLIFIED MONITORING:** Utilizing CO2 uniformly allows for centralized monitoring and management, enhancing operational efficiency.

**REMINDER:** It is crucial to assess the suitability of CO2 for specific applications, ensuring compliance with safety standards and maintaining equipment compatibility.

# Implementing the Strategy: Key Considerations

For QSR operators contemplating the adoption of a unified CO2 management strategy, the following factors are crucial:

### SYSTEM COMPATIBILITY
Ensure that the chosen monitoring solution integrates seamlessly with existing equipment and operational workflows.

### DATA SECURITY
Prioritize systems that offer robust data protection measures to safeguard sensitive operational information.

### SCALABILITY
Select a solution capable of scaling across multiple locations to accommodate future growth.

### VENDOR SUPPORT
Opt for providers that offer comprehensive support and that are open to partnering with restaurant operators to create greater efficiencies.

# Conclusion

## Embracing Innovation for Competitive Advantage

In the competitive landscape of quick-service restaurants, operational efficiency and cost control are paramount. Addressing the often-overlooked area of $CO_2$ management through a comprehensive, system-wide strategy presents opportunities to enhance profitability, ensure consistent product quality, and support sustainability initiatives. By adopting advanced $CO_2$ monitoring solutions and standardizing their practices across all locations, QSR operators can transform a perennial vulnerability into a strategic advantage, positioning their businesses for long-term success.

## Ready to see how much you could save?

Schedule a call to review your current $CO_2$ spend and explore how centralized monitoring could transform your margins.



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# About Pulsa

Pulsa is a leading provider of cellular-connected sensor hardware and software solutions for industrial IoT applications, leading the market in $CO_2$ tank monitoring for restaurants. The company's data platform enables businesses to gain total control over their physical inventory operations, providing real-time readings and reliable telemetry solutions. The award-winning Pulsa platform is trusted by manufacturing facilities, hospitals, labs, and numerous QSR and FSR brands for its reliability and customer support.



# How it works
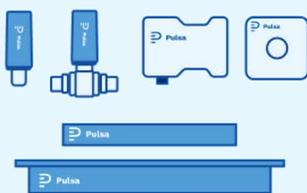


**Pulsa Sensors**

Add sensors to inventory assets in a way that works for your business and your customers. Sensors measure every 3 minutes.

**Pulsa Gateway**

The bridge that connects sensors to the dashboard. Works with all 3 major U.S. cellular carriers.

**Pulsa Dashboard**

See inventory levels in real-time. Set alerts for specific levels and choose who receives them and how: email or SMS.

**Pulsa**