GAINS
MOVE FORWARD FASTER

Whitepaper

Building A Data-Driven Supply Chain for Success

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Imagine you're at the helm of a supply chain operation, responsible for millions—if not billions—of dollars in inventory. A sudden market shift sends demand soaring for one product while another sits gathering dust in a warehouse, tying up capital.

Do you act on instinct? Or do you have the real-time data necessary to pivot immediately, keeping costs low and customers happy? In a world generating 2.5 quintillion bytes of data daily, the potential to leverage data is vast—but largely untapped. 65% of business leaders admit their organizations primarily use data to justify decisions already made. This reactive approach stifles innovation, slows progress, and leaves opportunities for competitive advantage on the table.

Too many businesses still rely on gut feelings, outdated assumptions, or the loudest voice in the room when making critical decisions. In fact, according to PwC, **59% of executives estimate their next major decision to be worth $100 million or more,** yet many admit to discounting data when it challenges their intuition. The result? Inefficiencies, missed opportunities, and costly errors. But what if decision-making wasn't a guessing game? What if supply chain leaders could anticipate disruptions, optimize inventory, and make strategic moves with **data-backed certainty?**

This white paper explores how businesses can **leverage data, advanced analytics, and real-time insights** to move beyond traditional, outdated decision-making models. With the right tools and mindset, organizations can **increase efficiency, enhance agility, and gain a competitive edge**—not just in today's marketplace, but in the uncertain future ahead.

Ready to stop making educated guesses and start making **smarter, faster, and more strategic decisions?** Let's dive in.

Making intuition-based decisions leads to:

1. **Delays in Corrective Action:** Ignoring evidence that challenges existing decisions can lead to compounding errors. For example, a supply chain leader dismissing data that forecasts a demand drop that differs from their experience may result in overproduction and wasted resources.
2. **Loss of Credibility:** Disregarding facts can erode trust among customers and stakeholders and cause them to question organizational competence or transparency.
3. **Missed Opportunities:** Data often reveals opportunities for innovation or improvement that intuition alone may miss. Failing to act on these insights can leave organizations trailing behind competitors.

Advantages of Data-Driven Decision-Making

The benefits of being data-driven go beyond individuals making individual decisions—it creates a culture of informed collaboration, accountability, and continuous improvement. Data-driven organizations are better equipped to anticipate challenges, align strategies across teams, and adapt to a rapidly changing market. In the long run, embracing a data-first mindset not only improves operational performance with unbiased insights revealing hidden opportunities, but also strengthens customer relationships, enhances brand reputation, and secures long-term growth. According to the Forbes article Being Data-Driven Is Likely Your Best Bet:

"Data-driven companies are 23 times more likely to top their competitors in customer acquisition, about 19 times more likely to stay profitable and nearly seven times more likely to retain customers."

Case Study: Border States

When faced with increasing variability in lead times, long-time GAINS customer and leader in electrical distribution Border States leveraged machine learning to analyze diverse data sets. Unexpected predictors, such as vendor latitude and longitude, emerged, significantly improving forecasting accuracy and operational efficiency. This example highlights how data-driven methods uncover value traditional approaches often miss.

From Data to Action

- **Focus on Patterns, Not Causes:** Algorithms prioritize statistical correlations, bypassing the need for human-framed hypotheses.
- **Leverage Machine Learning:** Tools analyze data at scale, uncovering insights that drive agile, informed decisions.
- **Embed Decision Intelligence:** Transform raw data into actionable insights across procurement, supply chain, finance, and strategy.

By utilizing the GAINS lead time prediction solution, Border States has allowed data to guide its supply chain optimizations. Instead of relying on manual adjustments or heuristics, they let algorithms surface actionable insights.

5 Key Elements of a Data-Driven Supply Chain

This section outlines the five key elements of a data-driven supply chain, each playing a crucial role in transforming raw data from your systems into actionable insights. From leveraging real-time analytics and advanced AI to integrating cross-functional teams and focusing on performance metrics, these foundational components enable businesses to make informed, strategic decisions with confidence. By adopting a data-first mindset, companies can ensure resilience, efficiency, and long-term success in an increasingly competitive landscape.

1. Letting the Data Lead

According to PwC, 59% of executives estimate their next major decision to be worth $100 million or more. Pivotal decisions make a big difference in the future of your business; they demand clarity, precision, and confidence—qualities that only data can deliver.

Big Data has fundamentally changed how businesses operate. Traditionally, supply chain leaders might rely on historical purchasing patterns to determine how much stock to keep on hand, assuming that past trends will repeat. However, machine learning processes and analyzes immense datasets, uncovering multi-dimensional connections that would otherwise remain hidden and then continually adapt and improve with every decision. Most organizations use data in some fashion for decision-making, but many can't claim to be fully "data-driven." In fact, in the annual NewVantage Partners executive survey, only 24% said they had "created a data-driven organization." Being data-driven means you lean into the numbers. Data-driven organizations are three times more likely to report improvements in decision-making compared to other companies that leverage data less.

This approach abandons the need for causation and focuses solely on actionable patterns- analyzing first and forming theories later— leaders can avoid the pitfalls of confirmation bias and uncover elusive truths. A.I. can uncover patterns and trends using data drawn directly from your existing systems allowing you to improve performance. By relying on hard data, leaders can make decisions in alignment with real-world conditions and trends as demand, logistics, and inventory levels are constantly changing. Data-driven decision-making creates a loop of continuous improvement where organizations can better track the outcomes of their decisions, identifying what worked and learning from what didn't.

2. Continuous Collection of Data

Beyond periodic reporting or static snapshots, the use of real-time or near-real-time data streams provides an accurate holistic view of operations. In rapidly changing volatile environments continuous data collection is vital for maintaining the accuracy and relevance of insights used in decision-making, even slightly outdated or incomplete data can lead to costly errors and missed opportunities. Data can be gathered from a wide array of sources on an ongoing basis to ensure decisions are informed by up-to-date, comprehensive data.

By constantly updating and expanding your data, organizations can:

1. **Respond to Real-Time Changes:** Whether adjusting to sudden shifts in demand or navigating disruptions in logistics, continuous data collection ensures that decision-makers are equipped with up-to-date information.
2. **Identify Emerging Trends:** Ongoing data streams help organizations spot trends early, allowing them to anticipate customer needs, market shifts, or potential risks before they escalate.
3. **Improve Forecast Accuracy:** The more data collected over time, the more robust predictive models become, enhancing the precision of forecasts and long-term planning.
4. **Support Proactive Problem-Solving:** Continuous collection allows businesses to identify potential bottlenecks or inefficiencies as they begin to develop, rather than reacting to problems after they've occurred.

Example

Real-time data collection can predict potential risks before they impact operations. This minimizes downtime, reduces waste, and enables businesses to maintain smooth workflows even in volatile conditions. The agility provided allows supply chain professionals to gain an advantage over their competition. As well as:

- dynamically reroute shipments to avoid delays caused by weather conditions.
- preemptively adjust stock levels in regions experiencing surges in demand.
- ensuring products are available where they are needed most.

3. Using Composable Technology

A hallmark of data-driven organizations involves leveraging cutting-edge systems (AI, machine learning, predictive analytics, etc.) to process and interpret vast amounts of data. While some traditional software solutions claim to do it all, they are typically monolithic in size and require commitment to the platform—which requires disproportionate effort to enact changes. Composable supply chain solutions like GAINS provide actionable insights, uncover patterns, and automate repetitive processes, ensuring decisions are informed and efficient.

Sometimes referred to as "MACH architecture," composable solutions (Microservices, API-first, Cloud-native, and Headless) software represents a modern, approach to enterprise technology. Unlike rigid, monolithic systems, MACH architecture enables businesses the flexibility to assemble best-in-class technologies that seamlessly integrate and evolve with their needs. In a composable supply chain, this means leveraging modular, scalable solutions that can be customized, updated, or replaced without disrupting operations. By adopting a MACH framework, organizations gain agility, faster deployment cycles, and the ability to adapt to market shifts in real-time. **This approach ensures supply chain leaders can continuously optimize operations with the most advanced tools available—**without being locked into a single-vendor ecosystem.

Composable platforms break down traditional silos

This shared access fosters a culture of collaboration where teams align their efforts around consistent, data-driven insights synchronizing decisions that benefit the entire enterprise. The implementation of composable technology and tools extends far beyond operational efficiencies—it fundamentally transforms the way organizations address challenges, foster innovation, and maintain a competitive edge. Advanced systems and real-time analytics empower organizations to respond rapidly to shifting dynamics. Whether faced with fluctuating demand, sudden supply chain disruptions, or unexpected global events, businesses backed by a landscape of composable technologies can make swift, data-informed decisions to minimize disruptions and capitalize on emerging opportunities.

Advanced technology is the backbone of a data-driven organization.

Enabling businesses to:

1. **Handle Complex Data:** Modern supply chains generate immense volumes of structured and unstructured data from various sources. Advanced analytics quickly and accurately provide insights that are often impossible to discern manually.
2. **Improve Forecast Accuracy:** AI-powered algorithms analyze historical data and real-time inputs to create highly accurate forecasts, enabling organizations to align inventory, logistics, and production with predicted demand.
3. **Enable Scalability:** As businesses grow, so does the complexity of their operations. Automated systems and tools ensure that data analysis and decision-making scale alongside the organization without compromising quality.
4. **Enhance Efficiency:** Automation reduces the time and effort spent on mundane tasks, such as data cleaning or basic reporting, allowing supply chain professionals to focus on strategic decision-making.
5. **Facilitate Proactive Decision-Making:** Predictive analytics help organizations anticipate challenges, such as demand fluctuations or potential disruptions, and address them before they escalate.

Example

A retailer uses a composable framework for the strategic integration of specialized inventory optimization software with its existing ERP for example. AI-powered analytics can be used to analyze customer purchasing behavior alongside external factors such as weather patterns and regional events to transform its processes and become more competitive in its market. A composable software approach enables precise demand forecasting, allowing the company to proactively allocate inventory where it is needed most. Whether stocking sunscreen in anticipation of a heatwave or preparing for increased demand for hot cocoa during colder months, these insights help the retailer align inventory with customer expectations. By employing these technologies, the retailer reduces costs, minimizes inefficiencies, and ensures timely deliveries, ultimately enhancing customer satisfaction and strengthening its market position.

4. Cross-Team Integration

Integration across teams refers to the accessibility and free sharing of data-driven insights across different departments within an organization. It eliminates silos by fostering a collaborative environment where decisions are informed by a unified understanding of data, ensuring alignment in goals and strategies. Cross-team integration is essential for creating a cohesive and efficient organization, especially in complex operations like supply chain management.

Integration across teams does more than optimize day-to-day operations—it reshapes organizational culture and improves decision-making. Viewing challenges through a collective lens promotes alignment and innovation. When all teams have visibility into the same datasets, there is less room for miscommunication or competing priorities, strengthening a company's ability to adapt and excel in the face of rapid change. In the long term, cross-team integration builds trust, accountability, and efficiency, transforming how organizations approach problem-solving and strategy. It ensures that every decision is not only informed by the best available data but also aligned with the collective goals of the enterprise.

By breaking down barriers between departments, businesses can:

1. **Enhance Collaboration:** Teams work together using shared data, aligning their efforts to achieve common objectives rather than operating in isolation.
2. **Streamline Decision-Making:** When all departments have access to the same real-time data, decisions are based on a single source of truth, reducing conflicts and discrepancies.
3. **Improve Efficiency:** Integration eliminates redundant processes and miscommunications, ensuring that time and resources are focused on what truly matters.
4. **Strengthen Accountability:** With shared data and transparent workflows, teams can better understand their roles within the broader organizational context, fostering responsibility and trust.

Example

Traditionally organizations are siloed with separate teams for procurement, logistics, and sales operating independently, each relying on their own source of truth. This leads to inefficiencies, such as overstock, shipment delays, and misaligned inventory levels. With integrated systems in place, when customer demand for a seasonal product spike, all teams are immediately informed through the unified platform. Procurement ensures timely raw material sourcing, logistics adjusts delivery schedules to prioritize high-demand regions, and sales communicates updates to customers. This integrated approach reduces delays and ensures customer satisfaction.

5. A Focus on Metrics and KPIs

Organizations that focus on measurable data-based decision-making reduce the influence of opinions and conjecture in their operations. Vital for maintaining clarity and accountability, focusing on metrics and Key Performance Indicators (KPIs) means identifying and using measurable benchmarks to evaluate success and guide decision-making. KPIs translate complex processes into clear, actionable insights, allowing for an objective view of performance. Allowing supply chain leaders to quickly identify areas of success, address weaknesses, and make informed decisions to drive continuous improvement. Focusing on metrics ensures that every decision is data-based and aligned with broader organizational objectives, which creates a unified direction across teams and helps foster a culture of openness and trust. Regularly reviewing KPIs enables organizations to respond swiftly to change before issues can have long-term effects, ensuring resilience, and agility in the face of disruption.

By emphasizing measurable outcomes, organizations can:

1. **Set Clear Goals:** KPIs help define what success looks like, ensuring every team member understands the targets they are working toward.
2. **Track Progress:** Regularly monitoring metrics allows organizations to identify trends, spot inefficiencies, and course-correct before issues escalate.
3. **Drive Accountability:** Clear benchmarks ensure that teams and individuals take responsibility for their contributions to broader goals.
4. **Facilitate Continuous Improvement:** By analyzing KPI performance, organizations can refine processes, optimize operations, and enhance overall efficiency.
5. **Proactively address Issues:** Businesses can identify patterns or recurring issues, enabling the development of proactive strategies to mitigate risks and maintain operational stability.

Example

Using data from transportation systems to identify a recurring issue with a specific carrier. When the on-time delivery rate dips below the set KPI threshold, a solution like GAINS can investigate and identify root causes. Armed with data-driven insights, they renegotiate contracts with the carrier or shift to a more reliable partner. Meanwhile, lead time data reveals inefficiencies in warehouse picking processes, prompting investments in automation to speed up operations. By focusing on these metrics, the company ensures its supply chain remains efficient, reliable, and cost-effective.

Four Steps to Building A Data-Driven Supply Chain

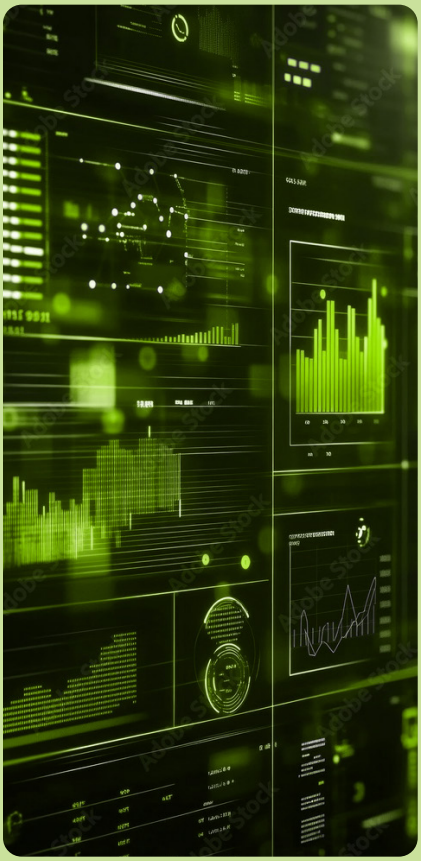
Transitioning from a traditional to a data-driven approach requires more than just access to data—it demands strategic investment, cultural transformation, and continual development. Below are the critical steps that supply chain professionals need to take to build a business guided by data-based decision-making.

1. Invest in Technology

The foundation of data-based decision-making lies in leveraging the right technology to collect, process, and analyze data. Modern tools such as predictive analytics, artificial intelligence (AI), machine learning (ML), and data visualization software are essential for transforming raw data into actionable insights.

Actions to Take:

- **Evaluate Needs:** Assess your current supply chain operations to identify inefficiencies, pain points, or gaps that could be addressed with technology. For example, do you struggle with demand forecasting, inventory management, or transportation planning?
- **Adopt Predictive Analytics:** Implement software that uses historical and real-time data to anticipate trends such as demand fluctuations, supplier lead times, or potential disruptions.
- **Implement AI and ML:** Use AI-driven tools to optimize complex processes, such as routing shipments, identifying bottlenecks, or automating procurement decisions.
- **Integrate Dashboards:** Deploy data visualization tools to present insights in user-friendly dashboards, enabling teams to monitor KPIs and make informed decisions quickly.
- **Invest in Composable Systems:** Choose cloud-based platforms that can scale with your organization's growth and integrate with existing enterprise resource planning (ERP) systems for seamless data flow.



2. Build a Culture That Values Data

Technology alone is not enough—an organization must embrace a mindset where data drives every decision. A data-driven culture ensures that employees at all levels rely on data rather than intuition or tradition when making choices.

Actions to Take:

- **Lead by Example:** Ensure leadership prioritizes data-driven decision-making in their own practices and communicates its importance throughout the organization.
- **Promote Cross-Department Collaboration:** Break down silos by ensuring data is accessible across teams like procurement, logistics, and sales. Encourage collaboration using shared dashboards and metrics.
- **Set Expectations:** Make data-driven decision-making a core competency for all roles, and communicate clear expectations for using data in daily operations.
- **Create a Feedback Loop:** Regularly share success stories of how data-driven strategies have improved outcomes, reinforcing the value of this approach.
- **Standardize Data Processes:** Establish consistent practices for collecting, analyzing, and reporting data to ensure alignment across the organization.

3. Focus on Data Quality

The value of insights is only as good as the quality of the data. If data is inaccurate, incomplete, or irrelevant, decisions based on it can lead to costly mistakes. Ensuring data quality is therefore essential for building trust in data-driven strategies.

Actions to Take:

- **Conduct a Data Audit:** Regularly review data sources to identify inaccuracies, duplicates, or outdated information. This helps ensure decisions are based on reliable and current data.
- **Establish Clear Standards:** Define guidelines for data collection, storage, and usage. This includes setting standards for format consistency, naming conventions, and data validation.
- **Invest in Data Cleaning Tools:** Use software solutions to automate the cleaning and deduplication of data, saving time and reducing human error.
- **Prioritize Relevance:** Focus on collecting data that aligns directly with organizational goals and KPIs. For example, if your goal is to optimize lead times, prioritize tracking supplier performance and delivery timelines over unrelated metrics.
- **Monitor Data Continuously: C**reate a process for regularly updating and validating data to ensure it remains accurate and useful as conditions evolve.
- **Foster Accountability:** Assign responsibility for maintaining data quality to specific individuals or teams to ensure consistent oversight.

4. Invest in Employees

Even the most advanced tools and clean data are ineffective if employees lack the skills to interpret and act on insights. Empowering your workforce through training ensures that teams can fully leverage the potential of a data-driven approach.

Actions to Take:

- **Identify Skill Gaps:** Conduct an assessment to understand where employees need support in data literacy, analysis, or the use of specific tools.
- **Offer Targeted Training:** Provide training programs on topics such as data interpretation, analytics software usage, and the basics of machine learning. Tailor these sessions to different roles—planners, procurement specialists, and warehouse managers may require unique skill sets.
- **Foster a Culture of Learning:** Encourage employees to continuously develop their skills by offering access to online courses, certifications, and workshops focused on data-driven practices.
- **Leverage Technology for Training:** Use interactive platforms or simulations to help employees practice applying data insights to real-world scenarios.

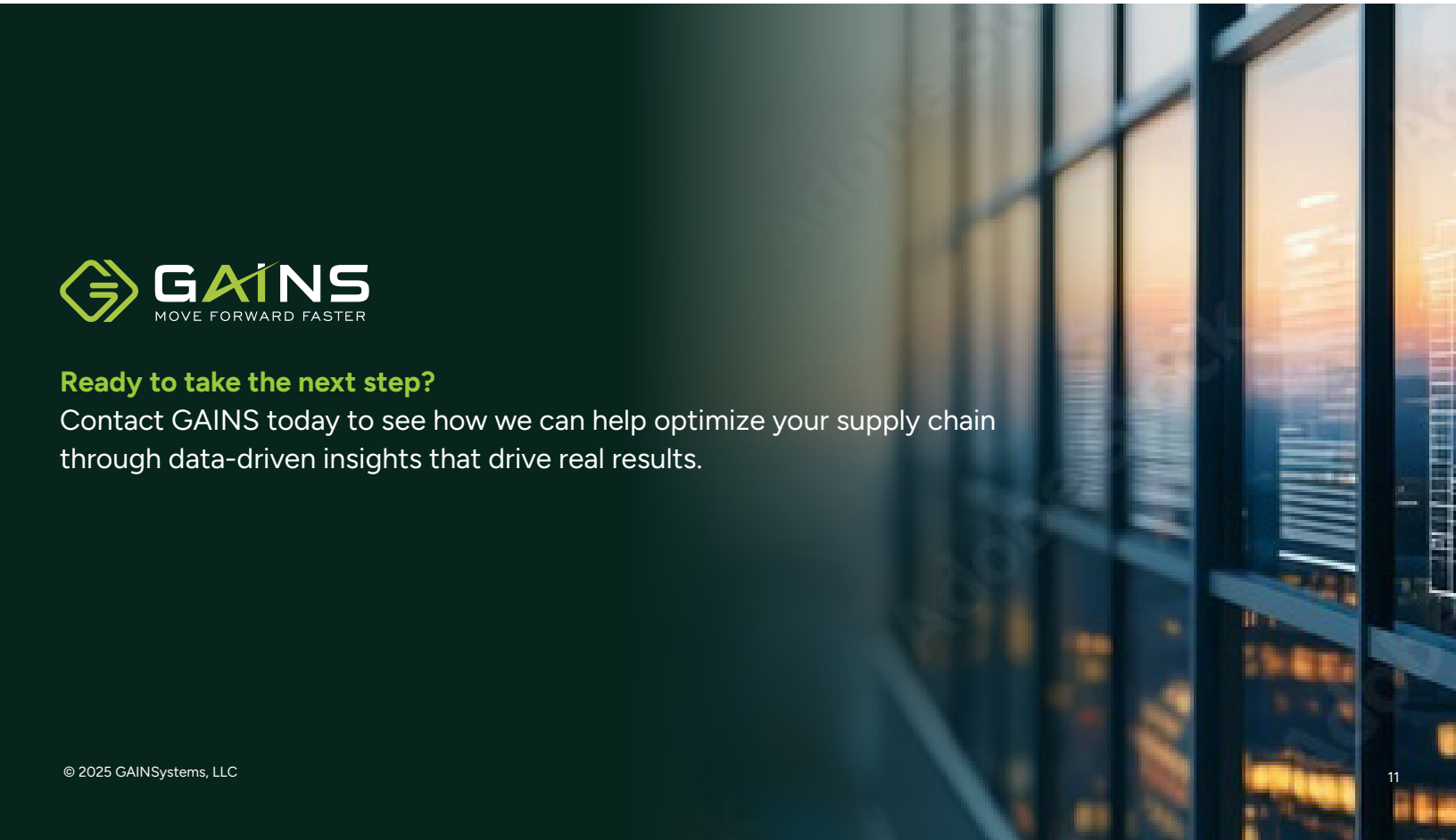
The Future is Data-Driven

At GAINS, we believe that any organization—regardless of industry or size—can harness the power of data-driven decision-making to optimize its supply chain and drive sustainable growth. Leaders in supply chain, procurement, and IT must champion this transformation, bridging silos and fostering a data-first culture. By embracing decision intelligence, organizations not only stay competitive but also redefine their industries.

By adopting the principles outlined here, businesses can move beyond outdated, intuition-based strategies and embrace a future where decisions are guided by data and refined by experts. With the right technology, a culture that values data, high-quality information, and a skilled workforce, companies can build supply chains that are more agile, efficient, and competitive. The shift to a data-driven mindset isn't just a trend—it's a strategic advantage that will forever shape the future of global supply chain management.

Building a Data-Driven Supply Chain with GAINS

Data-driven decision-making is foundational for supply chain excellence. With decades of experience helping businesses transform their operations, we've seen firsthand how organizations of all sizes can leverage data to drive efficiency, resilience, and profitability. But simply having access to data isn't enough—companies must take deliberate steps to integrate data into their culture, processes, and technology stack. A successful data-driven supply chain requires a shift in mindset, a commitment to quality, and the right tools to turn insights into action.



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Ready to take the next step?
Contact GAINS today to see how we can help optimize your supply chain through data-driven insights that drive real results.