White Paper

Concept to Customer
in Food & Beverage Industries

Accelerating Your Business through Digital
Supply Chain Capabilities

Executive Summary

Food and beverage companies face ever-increasing supply chain challenges often including long raw material lead times, fluctuating commodity prices, high demand uncertainty and seasonality, short shelf-life and perishability, growing and ever-changing portfolio or products, increasing regulations, and an imperative to meet increasing customer expectations for safe, high quality products when and where customers want them. Often the number one supply chain imperative is increasing speed: speed of product launches, speed of decision making, speed of purchasing and manufacturing, and most importantly, speed of customer fulfillment.

What if you could break down the barriers preventing the flow of information … collaborate across teams, departments, continents—even customers and suppliers—to make the smartest decisions in the shortest amount of time … what if you could dramatically collapse planning cycles and gain a first mover advantage … or be able to ride a new unanticipated trend?

- Imagine one plan leveraged across your business to bring products to market faster.
- Starting with design, tech specs, and vendor onboarding and compliance tracking. Considering how the product looks … testing … and the right balance to achieve a high quality product.
- Moving to forecasting, sourcing and production. Looking at positioning raw materials … or bringing together components from multiple sources … or considering factors like seasonality and capacity.
- On to distribution in today's omni-channel network, including distribution centers, stores, or front doors.
- Then imagine collaborating every step of the way. Leveraging sales and operations planning. Balancing inventory demand and supply. Using advanced analytics to gain better visibility and new insights across your business.

This white paper examines the different capabilities food and beverage companies must have to make concept to customer a reality.

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Transforming the Digital Supply Chain

By focusing on a single platform for digital supply chain optimization that spans product concept to customer delivery, food and beverage companies can increase service, reduce costs and replace inventory with information. Creating such a concept to customer plan requires multiple areas of technology expertise, including:

INTEGRATED BUSINESS PLANNING

ADVANCED ANALYTICS

QUALITY & COMPLIANCE

SOURCING MANAGEMENT

DEMAND OPTIMIZATION

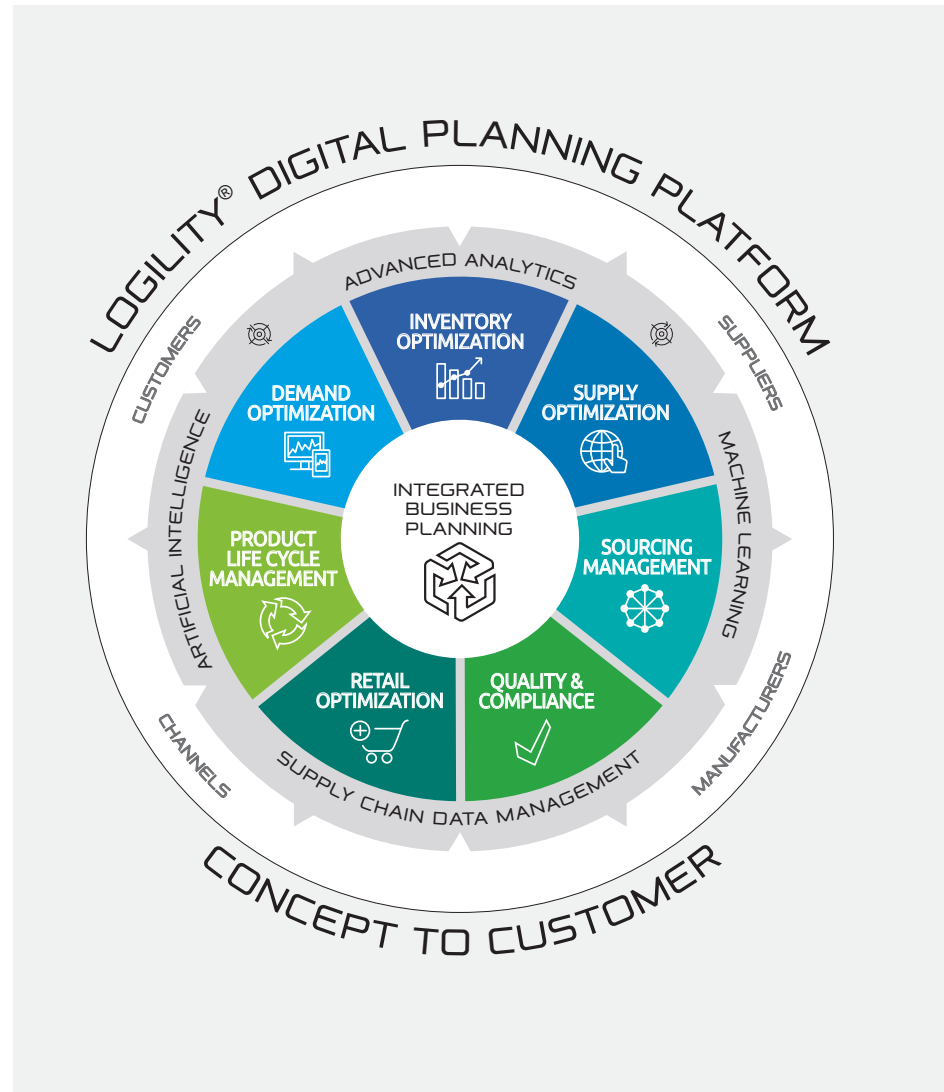**INVENTORY OPTIMIZATION**

SUPPLY OPTIMIZATION

RETAIL OPTIMIZATION

PRODUCT LIFE CYCLE MANAGEMENT

Let's take a closer look at some of these areas.

Advanced Analytics

Advanced analytic capabilities are more important than ever to a company's ability to reduce costs, meet ever-increasing customer expectations and attract and retain talent. Top supply chain talent want to work with solutions that allow them to spend their time creating value not shifting through spreadsheets containing last week's data.
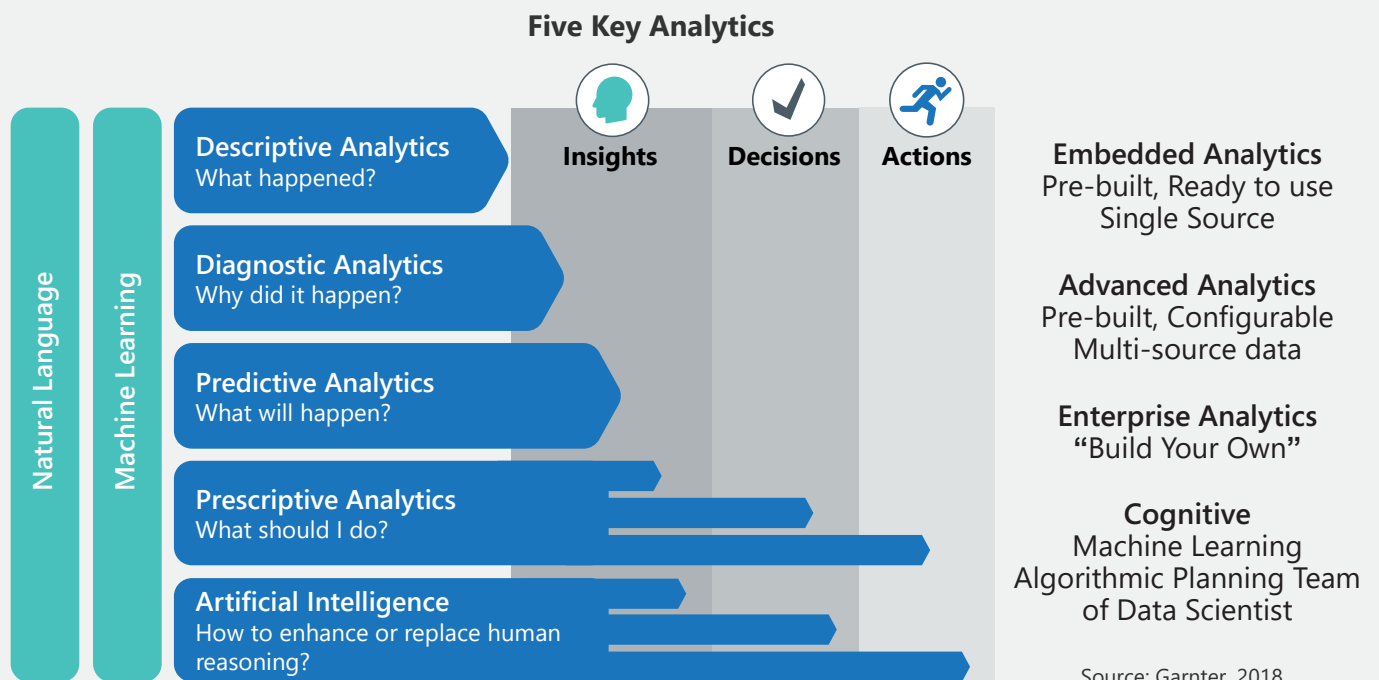
Supply chain analytics is the application of mathematics, statistics, visualization, and artificial intelligence to find meaningful patterns in the vast mountains of data produced by enterprise systems and external sources. Tapping into both structured and unstructured data sources, advanced analytics help you draw conclusions about your demand, inventory, production and distribution operations to quickly drive more informed customer-centric business decisions.

ADVANCED ANALYTICS:

Leverage Artificial Intelligence [AI], machine learning, algorithmic optimization, simulations, scenarios and other forms of advanced analytics to provide new insights, automate planning and remove time, inventory and risk from your supply chain.

Research has shown a strong correlation between more advanced analytics and higher Return on Investment [ROI]. Higher analytics maturity levels often lead to improved product quality, increased revenues and service levels while decreasing inventory. According to Gartner Research[1,] companies with a high level of analytics maturity versus those with a low level of analytics maturity are:

- 29% more likely to improve customer service level
- 44% more likely to have successful product launches

- 52% more likely to improve product quality
- 29% more likely to improve asset utilization, and
- 44% more likely to produce higher revenues

Five Key Analytics

Descriptive Analytics — What happened?	**Insights**	**Embedded Analytics** Pre-built, Ready to use Single Source
Diagnostic Analytics — Why did it happen?	**Decisions**	**Advanced Analytics** Pre-built, Configurable Multi-source data
Predictive Analytics — What will happen?	**Actions**	**Enterprise Analytics** "Build Your Own"
Prescriptive Analytics — What should I do?		**Cognitive** Machine Learning Algorithmic Planning Team of Data Scientist
Artificial Intelligence — How to enhance or replace human reasoning?		Source: Garnter, 2018

Natural Language

Machine Learning

Product Life Cycle Management

Whether your company is a manufacturer, distributor or retailer you need real-time visibility into product data and the ability to share this information between design, planning manufacturing, merchandising, costing sourcing and logistics. To be successful, food and beverage companies facing tighter government regulations, shorter product life cycles and shrinking profit margins, need a Product Life cycle Management [PLM] solution to address their complex supply chain challenges.

PLM provides productivity improvements to every area involved in developing, planning, acquiring, making, and delivering a product. PLM empowers the connected enterprise allowing companies to broadcast information throughout the enterprise to optimize product lead-time and distribution operations, maximizing company revenue and profit.

PLM enables the following key Benefits:

- Increased speed to market by managing workflows and documents/data in a single, global, collaborative environment.
- Improved traceability enabling companies real-time visibility and control.
- Enhanced efficiency by using product development calendars to monitor on-time schedules and performance.
- Raised gross margins by reducing the cost of goods sold through line item price negotiations, raw material commitments and capacity planning.
- Improved product adoption rates by making decisions earlier in the product development cycle.
- Reduced development costs by establishing product viability prior to launching new products.
- Managed recipe and specifications to always provide the latest version across the extended enterprise.
- Enhanced product quality and brand consistency through tight control over product labels, and definitions, logos, and messaging through collaborative workflow and standard templates.

PRODUCT LIFE CYCLE MANAGEMENT:

Improve design productivity and reduce lead times with real-time visibility to streamline moving product concepts to market and rationalize complex product lines. Collaborate with your vendors to synchronize activities, reduce sampling costs, leverage a library of digital assets and grow margins with better product launches.

Sourcing Management

Today's number one priority for consumer focused companies can be summed up in a single phrase: speed to market. The push towards faster cycle times is driven by the "we want it now" mindset of today's consumers. To speed up product cycle times, companies are laser focused on supply chain efficiency.

Companies are increasingly looking to better supplier management as a way to improve turnaround time. By focusing on strategic relationships with their best suppliers, companies can not only negotiate better pricing but also prioritize production scheduling and contract manufacturing. Advanced sourcing management capabilities streamline supplier onboarding and management, enable continual monitoring of supplier performance, create supplier score cards, identify areas for improvement, and strengthen relationships with their most strategic suppliers.

When it comes to managing suppliers, there are three main components you should put in place to achieve success. Proper management of these areas will safeguard your business when working with suppliers.

SOURCING MANAGEMENT:

Optimize sourcing decisions and track vendor performance including RFQs, vendor profiles and onboarding, and milestone attainment.

The three pillars to successfully managing suppliers

1
Proper Supplier Onboarding

If expectations and procedures are established before any work commences, many issues can be avoided. An investment on your part in the proper onboarding of your long-term suppliers is an investment in your future, as well as the stability and future of your supplier.

2
Good Manufacturing Practices (GMP)

Ensuring products are consistently produced and controlled to the quality standards appropriate for their intended use through GMP audits helps ensure the long-term health of your suppliers and your company. The new FDA Food Safety Modernization Act (FSMA) which puts more focus on preventing foodborne illness only increases the need for supplier oversight and collaboration.

3
Supplier Corporate & Social Responsibility

You must create and implement Corporate Social Responsibility (CSR) practices and initiatives to manage your brand image. There are an array of vendor compliance issues that need to be managed when contracting for product and services. Your supplier's behavior indirectly represents you, and it can make or break a brand's reputation and viability.

Quality and Compliance

Product safety regulations are increasing at a rapid pace, and there is no slowdown in sight. Food and beverage companies must ensure their products meet a host of governmental and social regulations, adding another layer to already-burdened product development and supply chain operations. History has shown that product quality can literally make or break your brand's reputation and with it your financial performance. However, food and beverage companies can't sacrifice speed to market for increased product quality. What's needed to balance these two mandates is a robust Quality and Compliance Management platform that provides:

Quality Management & Audits
- Identify quality problems at a detailed level faster to reduce recalls and brand damage
- Perform inspections and audits at production facilities using mobile devices so issues can quickly be corrected
- Conduct electronic in-process and final quality audits
- Trend analysis when making sourcing decisions and identifying production resources in need of improvement

Regulatory Document Management
- Reduce risk of non-compliance and avoid costly litigation
- Enforce control and accountability for all suppliers, co-packers and other third parties involved in the production and delivery of your product
- Win market share by building and maintaining a positive public image

Global Logistics Management
- Enable suppliers to create barcode labels, inbound paperwork and ASNs via a web browser
- Automatically receive manifest, commercial invoice, bill of lading and packing list once your barcoded cartons are placed on a shipment
- Track the shipment as it reaches each location and learn of delays as they occur

QUALITY & COMPLIANCE:

Streamline quality and Corporate Social Responsibility [CSR] compliance processes to reduce the risk of cancellations, chargebacks and returns while protecting your brand and increasing customer satisfaction.

Supply Chain Planning and Optimization

The digital economy requires an intuitive supply chain platform to get the most out of your supply chain efforts, one that leverages algorithmic planning to model and analyze business opportunities while mitigating the associated risks. You need the ability to:

- Augment human insight with advanced analytics to gauge actual versus planned supply chain activity
- Get smarter over time with machine learning that interrogates big data for better predictions based on performance
- Use demand sensing to add short-term refinement to long-term demand and supply chain planning
- Automate planning activities related to demand, inventory, replenishment to boost planner productivity
- Collaborate throughout the extended supply chain

To allow your supply chain team to focus on a new vision for your food and beverage supply chain you need advanced capabilities for:

- **Demand Optimization:** Plan smarter and create more accurate forecasts that drive more accurate downstream supply chain plans to boost profitability, satisfy customers and synchronize supply chain partners.
- **Inventory Optimization:** Replace inventory with information to improve profitability, increase customer satisfaction, and free up working capital.
- **Supply Optimization:** Maximize cost-effective throughput by evaluating changing factors in production, distribution and storage operations. Minimize cost and maximize customer service through constraint-based periodic planning, event driven continuous planning and advanced analytic "what-if" scenario capabilities.
- **Sales & Operations Planning:** Profitability align and synchronize demand, inventory, and supply across the extended enterprise and over multiple time horizons [operational, tactical, & strategic]. Determine optimal responses to unplanned events and opportunities through the application of robust volumetric and financial simulations and "what-if" scenarios.

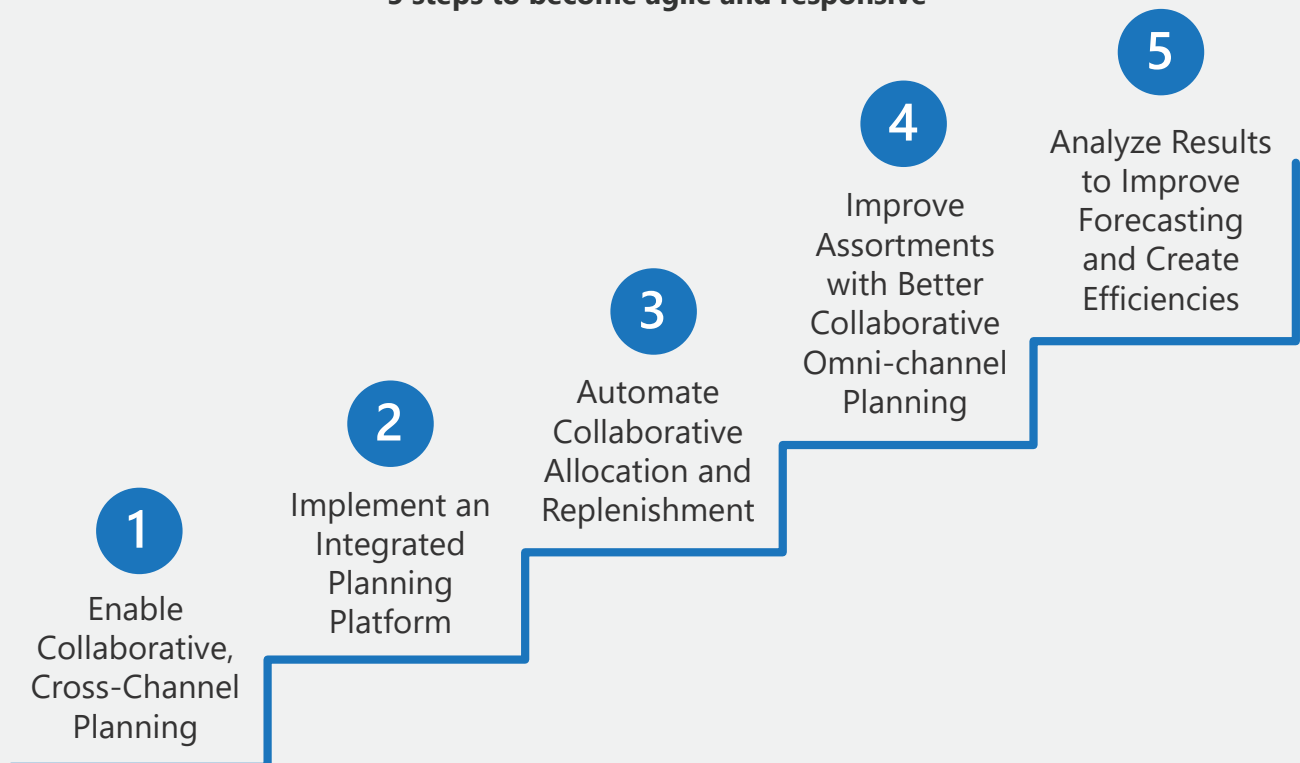|	
Demand Optimization	Leverage algorithmic optimization and machine learning to significantly improve prediction of market demand, new product introductions [NPIs], product phase-outs, short life cycle products, and promotions. Drive more accurate demand plans that are attuned to your diverse product portfolio, target markets and product life cycle stages.
Inventory Optimization	Set optimal inventory targets at each node and stage of a multi-echelon manufacturing and distribution network to attain strategic inventory and service level goals. Use a digital twin to model multiple strategies and business scenarios including service and costs tradeoff, postponement and alternate sourcing.
Supply Optimization	Optimize material, production and distribution assets by synchronizing supply and demand. Create supply, distribution and purchase plans that reflect real-world supplier and transportation constraints to evaluate sourcing, production and distribution options.

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Retail Optimization

Lack of visibility across the supply chain inhibits the ability to get the right merchandise to the right customer in the right place at the right time. An integrated approach to merchandise planning, assortment, allocation and replenishment eliminates blind spots that drive up inefficiencies and costs associated with disconnected legacy systems. Visibility into comprehensive retail planning data enables forecasting down to the SKU and individual store level, making omni-channel merchandising activities more efficient helping to increase customer satisfaction and improve margins.

The following five steps will help food and beverage companies become more agile and responsive to fast-changing customer trends through more effective collaborative cross-channel merchandise planning, assortment, allocation and replenishment:

RETAIL OPTIMIZATION:

Boost inventory performance with precise, flexible top-down, bottom-up and middle-out planning that integrates forecasting, merchandise and assortment planning, allocation and replenishment. Automate and schedule merchandise management, efficiently handle hundreds of thousands of omni-channel combinations, and optimize down the most granular item/store/day level of detail.

5 steps to become agile and responsive

1 Enable Collaborative, Cross-Channel Planning

2 Implement an Integrated Planning Platform

3 Automate Collaborative Allocation and Replenishment

4 Improve Assortments with Better Collaborative Omni-channel Planning

5 Analyze Results to Improve Forecasting and Create Efficiencies

Conclusion

Food and beverage companies need to effectively and efficiently manage the entire supply chain from product concept to customer consumption. Luckily, a convergence of advanced supply chain solution capabilities and powerful analytics, along with access to more powerful computers, 'Big Data', and a tech savvy workforce makes the timing ripe to take your food and beverage supply chain to the next level of performance.

Imagine being able to break down barriers that prevent the flow of information and build capabilities to seamlessly collaborate across teams, departments, continents and even customers and suppliers to enable the smartest customer centric decisions in the shortest amount of time. With Logility, accelerating your business from concept to customer isn't a dream, it's reality.

About Logility

Accelerating the sustainable digital supply chain, Logility helps companies seize new opportunities, sense and respond to changing market dynamics and more profitably manage their complex global businesses. The Logility® Digital Supply Chain Platform leverages an innovative blend of artificial intelligence [AI] and advanced analytics to automate planning, accelerate cycle times, increase precision, improve operating performance, break down business silos and deliver greater visibility. Logility is a wholly owned subsidiary of American Software, Inc. [NASDAQ: AMSWA].

To learn how Logility can help you make smarter decisions faster, visit www.logility.com.

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