



CASE STUDY: Consumer Goods Company

FOOD AND BEVERAGE COMPANY DRIVES
MAJOR PROFIT WITH RIVER LOGIC

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“One of the key values from River Logic is the ability to bring our functional teams data that they can make actionable...We want them to understand the opportunity cost of producing and selling one more or one less of that product, and River Logic enables that for us.”

-Vice President of Planning



EXECUTIVE SUMMARY

The company is a Fortune 1000 manufacturer of food products that owns several well-known consumer brands and serves most segments of the North American market. It is relatively integrated and develops, manufactures and distributes most of the products it sells.

The company has experienced significant growth in the last 10 years under the current management team; however, fast growth has also made it more difficult for executives to make the best decisions. Even after examining the best products from enterprise resource planning (ERP), supply chain management and analytics software providers, management believed these products would not give them the competitive advantage they sought.

TYPICAL UNANSWERED **QUESTIONS INCLUDED:**

- ? How should they profitability of the product portfolio?
- ? Where add or subtract capacity to maximize ROIC and profits (e.g., plants, production lines, distribution centers, etc.)?
- ? What manufacturing plants should make which products?
- ? What is the inventory strategy that yields the highest cash flow while maintaining acceptable levels of inventory turns?

In 2004, the company's Chief Planning Officer was introduced to River Logic's Optimization and Modeling Solution by a business school professor. He quickly selected River Logic as the preferred modeling and planning solution for the company. Recently, they have built and deployed five River Logic models to drive their business.

THE COMPANY BUILT FIVE MODELS **WITH RIVER LOGIC:**

1. A long-range planning model to evaluate strategic issues (e.g., capacity, capital expenditures and product portfolio)
2. A medium-range planning model to determine inventory strategy and tactical issues, including which plants should make which products
3. An operational planning model to define production sequencing and shift scheduling
4. A distribution model to determine the optimal distribution strategy
5. A truck loading and handling model to maximize efficiency and minimize costs

To date, the medium-range and loading models have enabled the company to capture significant quantitative and qualitative benefits, resulting in an ROI of 1,000% to 2,000%.

Qualitatively, the models have resulted in better / faster decisions and insights that transformed the way the company makes decisions. For example, management now understands that only a system-wide view of financials and operations — one that includes business constraints — yields the best decisions.

IN ORDER TO MAKE THEIR RIVER LOGIC INVESTMENT A SUCCESS, **THE COMPANY INVESTED IN THE FOLLOWING RESOURCES:**



A SENIOR-LEVEL CHIEF PLANNING OFFICER WITH CROSS-FUNCTIONAL RESPONSIBILITIES TO MANAGE THE RIVER LOGIC INITIATIVE



A CAPABLE AND CROSS-FUNCTIONAL TEAM COMMITTED TO RIVER LOGIC'S SOLUTION



STAKEHOLDERS FROM ALL RELEVANT AREAS WHO WERE BROUGHT INTO THE PROCESS EARLY



A DATA SYSTEM WITH COMPLETE AND HIGH-QUALITY STRUCTURED DATA, BUILT TO DRIVE RIVER LOGIC

RIVER LOGIC HAS BEEN A HUGE SUCCESS FOR THE COMPANY — **AND THE FOLLOWING SECTIONS ILLUSTRATE THE ISSUES AND IMPACT.**

BUSINESS CHALLENGES

The company's operations are relatively integrated. Most products are designed by the company's R&D department and manufactured in house across several North American facilities. The company also owns and operates several distribution facilities, as well as a fleet of trucks required to deliver products to its customers.

The product line consists of 300+ SKUs manufactured in house. An additional 20+ SKUs are private-labeled from other manufacturers. Consumption of the company's products is very dependent on seasons, holidays (e.g., the school season) and other factors (e.g., consumer preferences, weather, etc.). Demand variations require careful planning and inventory management.

Each manufacturing facility can make most SKUs. However, not all do given the very different levels of cost for processing and materials. Several distribution centers are equipped to maintain inventory and ship to over 4,000 locations. Customer orders are received weekly, and they deliver the product within 4 days of receiving the order.

300+
MANUFACTURED
SKUs

20+
PRIVATE LABEL
SKUs

OVER 4,000
STORES CARRY
ITS BRANDS

The company has a strong IT department which, prior to deploying River Logic's solution, had deployed several systems to improve the company's performance. These included an ERP system, an MES, a tool for logistics and supply chain management, a financial planning application and several other analytical/LP applications.

Even with a wealth of IT systems, management faced several challenges prior to discovering River Logic. They were still unable to answer the following pressing questions:

- ? How can we maximize profitability of the product portfolio?
- ? Where should we add/subtract capacity to maximize ROIC and profits?
- ? Which customers should we serve and how?
- ? What manufacturing plants should make which products?
- ? How can we maximize logistics efficiencies while still maximizing profits?
- ? Which production and shift-staffing schedule would maximize profitability?

The company considered investments in SCM and ERP systems as possible ways to address these needs. However, upper management and IT quickly decided to use River Logic — it was the only tool that provided a system-wide view of operations and financials simultaneously. Management felt that standard ERP and SCM systems would not give them the competitive advantage they sought. In addition, they decided River Logic would be the perfect complement to their six sigma initiatives.



RIVER LOGIC DEPLOYMENTS

The company has built five River Logic models to address the challenges faced by management, three of which help the business holistically plan for strategic, tactical and operational requirements system-wide. Two additional models address distribution and logistics issues within the boundaries set by the strategic models.



LONG-RANGE PLANNING MODEL

This model takes a long-term view to optimize capital investments and capacity decisions. The model answers questions about specific scenarios but — more importantly — it helps them optimize ROI and profitability by finding the best combination of investments. Typical problems include:

- ✓ When and where could we add manufacturing plants to maximize ROI?
- ✓ How can we invest in additional production lines to increase profit and maximize ROI. What capabilities maximize return?
- ✓ When and where should we add a distribution center to maximize profits and ROI while maintaining quality requirements?



MEDIUM-RANGE PLANNING MODEL

This model is constrained by capabilities set forth in the long-range planning model, as well as by future demand forecasts. The model takes a system-wide view of operational requirements and profit impact over one year to find the best tactical decisions in each period for a 13-period horizon:

- ✓ What should our inventory strategy be, given inventory requirements?
- ✓ What should be produced and at which plant?
- ✓ Which distribution centers should carry which products?
- ✓ Which products should be made versus bought?



SHORT-TERM PLANNING MODEL

This model finds the most profitable production plan across 60+ production lines, given production costs, constraints and sequencing requirements. Sequencing is particularly important to them, as line change-over times can range from 30 minutes to 20+ hours, depending on product sequence.



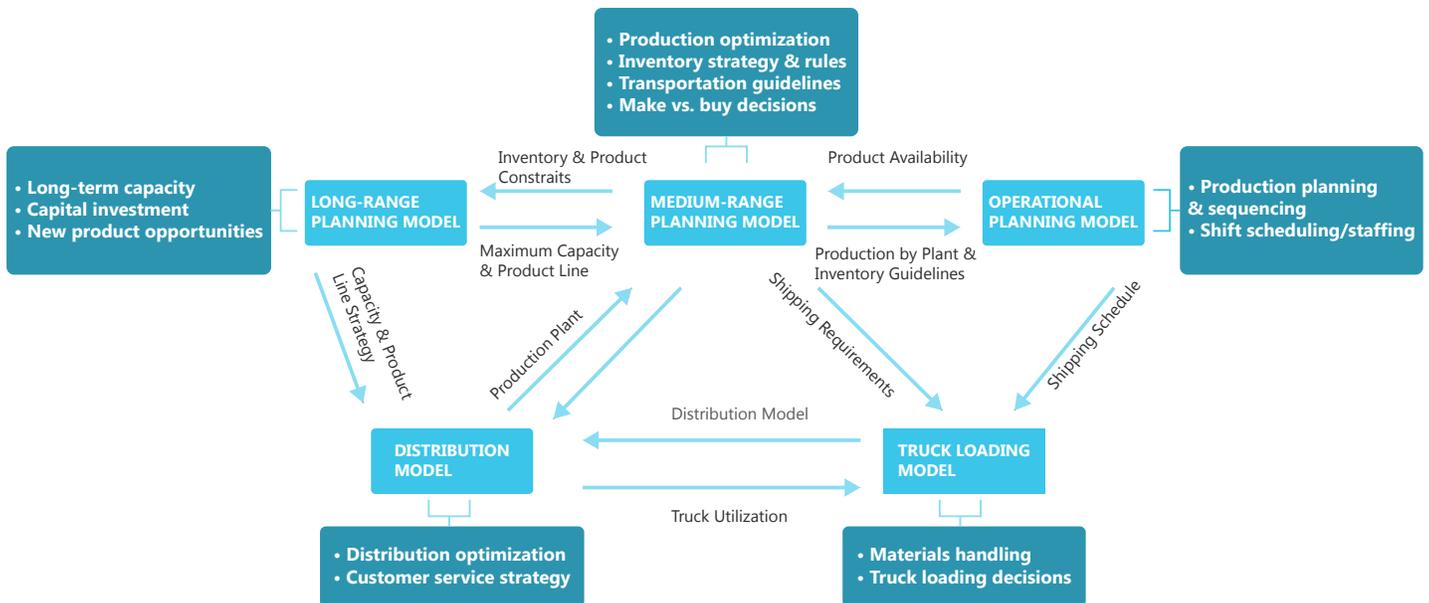
DISTRIBUTION MODEL

The company distributes its products from several distribution centers to over 4,000 customer locations. This model evaluates the distribution rules, delivery dates and transportation routes to find the most profitable distribution plan, given customer constraints. The medium and long-range plans place constraints on this model by defining capacity, product mix and production plans.



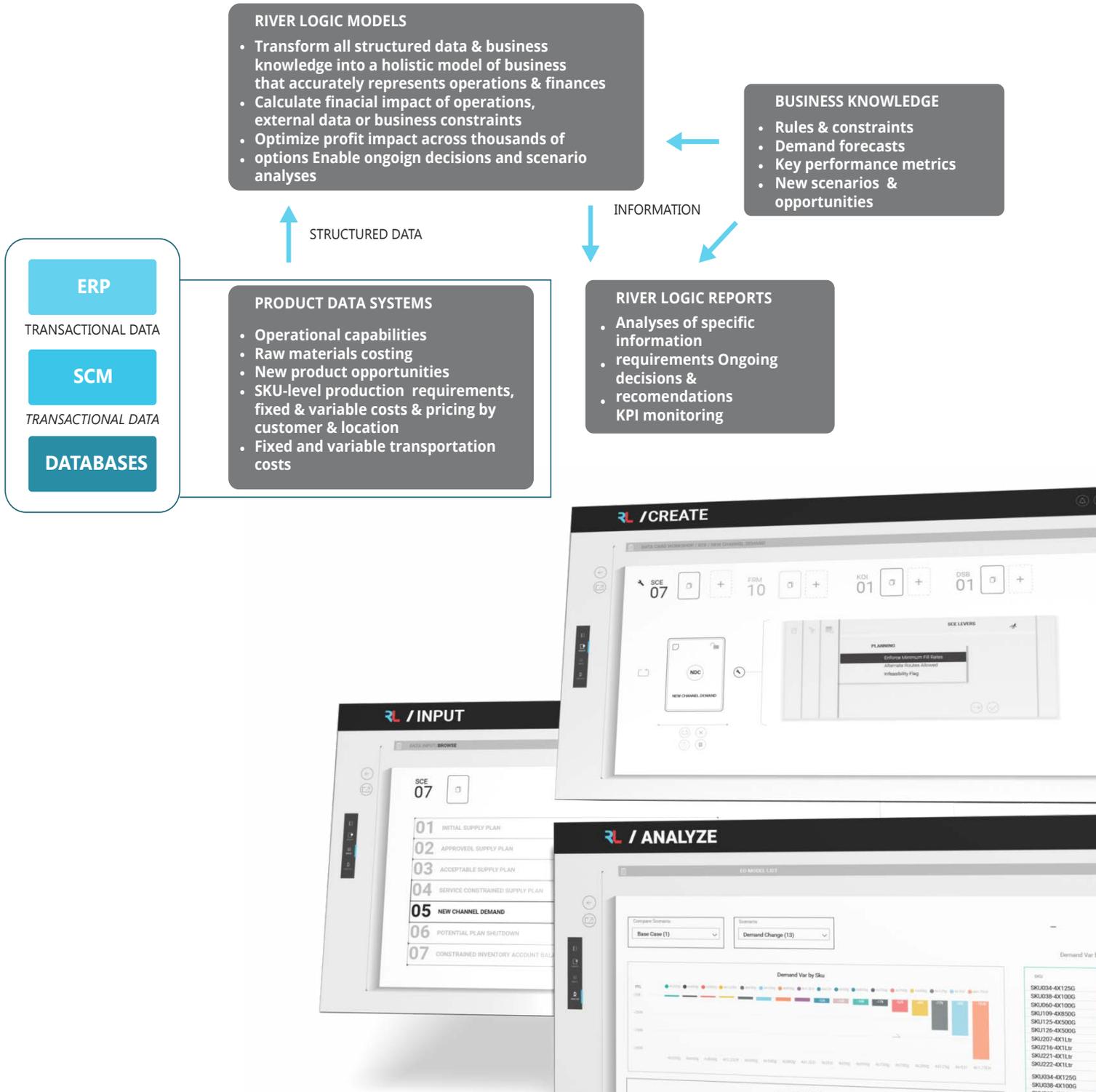
TRUCK-LOADING MODEL

This model helps them optimize pallet sizes, loading costs and unloading costs, as well as space available in the trucks. The chart below summarizes the decisions and interrelations among the River Logic models:



The company uses a product data system to gather, structure and clean the data fed to the models. The system imports data from its ERP, MES and logistics systems, as well as demand forecasts built on spreadsheets. Scenarios are run and stored in the databases for easier comparison.

The following graph illustrates how River Logic’s models interact with data and reporting systems:



BENEFITS OF ADOPTING RIVER LOGIC

This Fortune 1000 company has realized tremendous benefits from their River Logic investment, including better decision-making and financial returns. The insights derived from working on the River Logic models have led to new and improved ways of managing the business. Below is a summary of the benefits attained:

- ✓ **Higher profits:** The medium-range and truck-loading models have generated as much as **\$5M in profit improvements**, directly attributed to decisions enabled by River Logic.
- ✓ **Better decisions:** Decisions are made faster and with more certainty, leading to lower risk, improved quality and greater return. In addition, decision making is more transparent, leading to greater acceptance and more robust execution throughout.
- ✓ **Powerful, transformational insights:** Management has generated insights from River Logic that are truly transformational in the process manufacturing sector. One plant manager recommended they transfer an entire product line to another plant based on profit impact. Prior to River Logic, it was assumed that a plant capable of making a product should do so in order to serve customers close by. This wasn't the case!



River Logic found that the efficiency gained by making the product at another plant more than offset the additional transportation costs. The plant manager recommended the change despite a negative impact on her metrics, which were based on revenues over costs incurred at the plant at that time. Insights such as these have led management to think differently about the business.

- **All decisions should be made with consideration on profit impact on the entire system.** This requires that operations and financials be considered simultaneously, and software solutions that can model the **business holistically (e.g., River Logic) are essential.**

- **Strategic, tactical and operational decisions should be part of an overall plan, linked by a solid understanding of opportunities and constraints.** Things like inventory requirements must be considered for optimal decision making. Further, tactical and operational decisions should be constrained by strategic decisions.

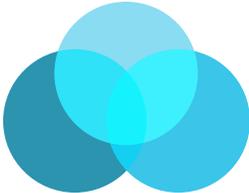
- **Objectives and incentives should be aligned with decisions that have the greatest impact on their financial performance, including profits, quality and delivery requirements.** For example, a plant manager should not be valued based on throughput or revenues from the plant; rather, he/she should be valued based on on his/her contribution to overall profits.



KEY SUCCESS FACTORS IN THE DEPLOYMENT OF RIVER LOGIC

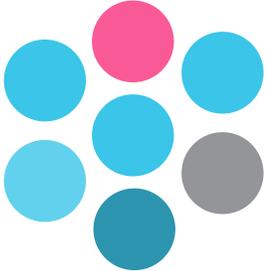
The company's use of River Logic has helped them uncover several best practices in deploying River Logic. The most important factors are picking the right executive champion, deploying a capable team, involving all stakeholders early in the process, and investing in capturing the data required.

ASSIGNING THE RIGHT EXECUTIVE CHAMPION:



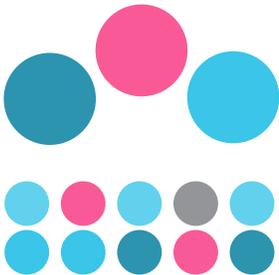
At the company, the Chief Planning Officer not only has responsibility for aligning the most important cross-functional processes, but also for driving profit and performance improvement across the organization. The CPO has a strong background in manufacturing, maintenance and supply chain management. River Logic has made it much simpler for the CPO to deliver on their commitments to the organization, providing a system-wide view of realistic profit improvement opportunities. It is critical in the early stages of River Logic deployment that a senior executive help steer the way to organizational buy in.





DEPLOYING A **CAPABLE TEAM:**

The company has assigned a very solid, cross-functional team that's aided by a consulting expert in manufacturing and managerial accounting. The team leader has a strong back-ground in supply chain management and is supported by two dedicated analysts. An MBA graduate structures and develops the models, leveraging his business knowledge, while an IT professional ensures data requirements are met.



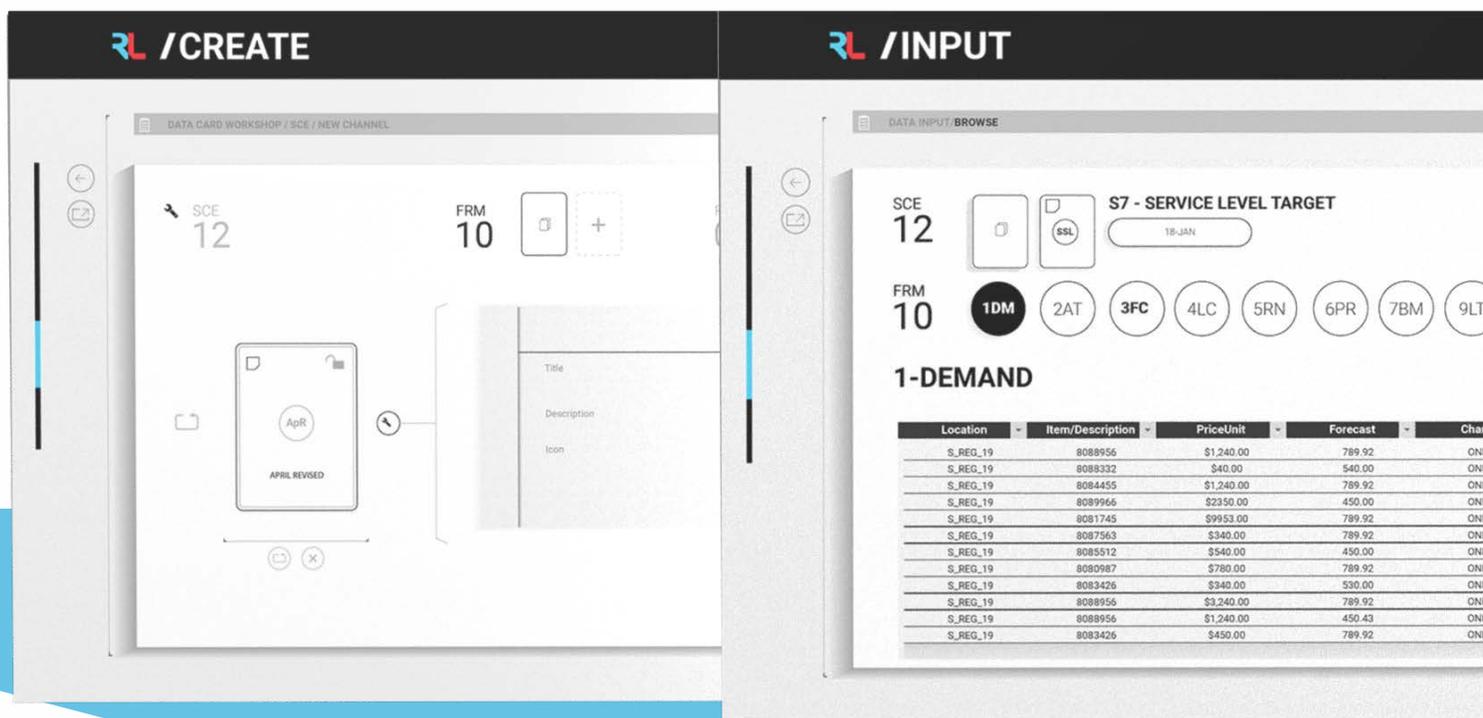
INVOLVING ALL STAKEHOLDERS **EARLY AND INVESTING IN DATA:**

It is critical to involve everyone with a stake in the model early on. In this case, they selected a representative from each plant to participate in model structuring, model development and scenario analysis. This insured that the company had both the appropriate input from those manufacturing organizations involved and organizational buy in. They saw it was also important to involve key accounting personnel early on in order to generate buy in and credibility on projected numbers, numbers which validates the output of the model.

CONCLUSION

The company has a strong belief in instilling continuous improvement within their organization — the modeling and scenario analysis capabilities within River Logic’s solution were able to meet that requirement. The application itself is unrestrained and constantly prompts the organization to do better.

The company continues to achieve much more profitable performance levels. Management believes the company will continue to significantly outperform its peers in all relevant operational and financial metrics for years to come, thanks to River Logic.



EO MODEL LIST

Compare Scenario: Base Case (1) Scenario: Demand Change (13)

Demand Var by Sku

SKU	Demand Variance
SKU034-4X125G	-152k
SKU038-4X100G	-77k
SKU060-4X100G	-56k
SKU109-4X850G	-32k
SKU125-4X500G	-19k
SKU126-4X500G	-12k
SKU207-4X1Ltr	-12k
SKU216-4X1Ltr	-12k
SKU221-4X1Ltr	-12k
SKU222-4X1Ltr	-12k
SKU034-4X125G	0.00
SKU038-4X100G	0.00
SKU060-4X100G	0.00
SKU109-4X850G	0.00
SKU125-4X500G	0.00
SKU126-4X500G	0.00
SKU207-4X1Ltr	0.00
SKU216-4X1Ltr	0.00
SKU221-4X1Ltr	0.00
SKU222-4X1Ltr	0.00

Filters: Demand, Term and Cost, P&L, Compare, High Level By Factory, CoPacking Requirements, Utilization, OverTime, Sku by Factory Month, RunRate

Y10 Z11

Panel Comment

LINE

ABOUT RIVER LOGIC

River Logic has been a global innovator in prescriptive analytics (optimization) since 2000. Its platform — designed for business users — enables enterprise-wide optimization, collaborative planning and performance management, all delivered through a revolutionary user experience. By understanding how to best utilize cross-functional resources and manage trade-offs, companies make more impactful decisions.

River Logic goes to market primarily through partner organizations like PWC, Barkawi, Grant Thornton and CGI, helping them develop high-value applications that monetize their IP. Recent clients include Unilever, BHP Billiton, the FAA, Jewish General Hospital, Peabody, the Russian Post and Valero. Typical client value-add ranges from 10% cost reduction to 2-5% of sales in additional profit.

GET A DEMO OF RIVER LOGIC'S

PRESCRIPTIVE **ANALYTICS PLATFORM**



INTEGRATED MODEL

OPTIMIZED DECISIONS

PRESCRIBED EXECUTION

DEMO

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