

The background of the top half of the page is a blue-tinted image of a financial spreadsheet. A magnifying glass is positioned over the right side of the spreadsheet, focusing on a specific row of data. The text "Use Prescriptive Analytics to Turn Potential into Profits" is overlaid in white on a semi-transparent blue circle on the left side of the spreadsheet.

Use Prescriptive Analytics to Turn Potential into Profits

Make decisions based on the financial impact you can see when using prescriptive analytics to model potential outcomes. Manufacturing case study demonstrates how prescriptive analytics helped drive continuous improvement actions that delivered the greatest financial results.

The Power of Profit-Based Decision Making

The hard part is developing and then executing a plan that will turn that vision into reality.

Prescriptive analytics can make executing improvement plans easier by helping everyone involved see what we see. It helps everyone understand what needs to be done and the financial impact of proposed changes. This shared vision is especially helpful for getting buy-in for efforts that require tradeoffs between functional areas, which is where many of manufacturers' biggest opportunities for improvement are today.

In recent blog posts we [explained what prescriptive analytics is](#) and [some of the manufacturing applications](#). In this post, we're going to explore how these analytical models can help leaders make profit-based decisions and implement the recommended changes.

Change for the Better

Business leaders are responsible for identifying what their company has to do differently and better to grow margins and maintain competitiveness. They must then champion and communicate the reasons for those changes. With the strategic direction in mind, management's job is to identify the specific business changes that have to be made, implement those changes and then sustain the new processes and performance levels.

Prescriptive analytics models use optimization and simulation algorithms to plot outcomes to possible decisions and offer guidance on what business leaders and managers should do given current and future circumstances. These models can also generate "opportunity values" that identify where the next performance improvement area should be, given the potential impact to profits. Business leaders can see, for example, how each point of productivity improvement would improve margins, including reductions in overtime and other factors.

People react to changes to how they live and work differently. We all fall somewhere on a continuum from "relishes change" on one end and "absolutely hates change" on the other. There will always be people who have strong doubts and who believe – often with good reason based on past experiences – that any proposed changes will not make much of a difference.

When they are understood and trusted, prescriptive analytics models can help win over naysayers by showing the impact of proposed changes on strategic objectives and operational and financial performance. This brief case study demonstrates how such models can impact decision making and execution.

How McKee Foods Makes Profit-Based Decisions

McKee Foods is an integrated manufacturer and distributor of cereals and baked

goods best known for the Little Debbie-brand snack cakes. The family-owned company employs 6,300 people.

For over a decade McKee Foods has been using prescriptive analytics models for planning applications and to instill a continuous improvement mindset across the organization.* These models include:

1. **A long-range planning model** to evaluate strategic options
2. **A medium-range planning model** for inventory strategy and other more tactical issues
3. **An operational planning model** for 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.

The long-range planning model helps company leaders anticipate the ROI and profit impact of facility and equipment investments. Questions that it helps answer include: When and where should McKee Foods add manufacturing plants to maximise ROI? How can they invest in additional production lines to increase profit and maximize ROI?

The medium-range planning model is constrained by the capabilities set forth in the long-range planning model and future demand forecasts. It takes a systemwide view of operational requirements and profit impact to find the best tactical decisions in each period over a 13-period planning horizon. Questions that this model helps answer include: What should be produced at which plant? Which products should be made versus bought? What should the inventory strategy be? Which distribution centers should carry which products?

Sequencing is important to McKee Foods because changeover times can range from 30 minutes to more than 20 hours. Given production costs, constraints, sequencing

and demand requirements, the short-term planning model identifies the most profitable production plan across 60-plus production lines.

Enabling people to see the financial impact of various options has changed the management mindset at McKee Foods. For example, despite the negative impact on her plant's metrics, one plant manager recommended that the company transfer a product line to another facility based on the overall profit impact. As a rule of thumb, management had assumed that any plant that could make a product should do so to best serve customers in that region. The prescriptive analytics model showed that the efficiency gains from consolidating production more than offset any additional transportation costs.

From Potential to Profits

Insights into what should be done are only the first step. To support implementation of improvement priorities McKee Foods named a chief planning officer who is responsible for driving profit and process improvement across the company. To further deepen buy in, when the company developed the prescriptive analytics models they pulled in representatives from each plant as well as key accounting personnel. This ensured that they had the necessary data and an accurate understanding of business constraints.

We hope this example has given you a better idea of how prescriptive analytics models can help drive continuous improvement. Whether it comes from expert eyes or analytical models, the more people who can see and understand the potential for operational changes as well as the financial impact, the easier and faster it is to implement the necessary changes and capture that potential.

** This abridged case study is courtesy of [River Logic](#), a new solutions partner for TBM Consulting Group. For more explanation and details see the full [McKee Foods case study](#) by River Logic.*



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