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Retail Practice

The invisible hand: On the path to autonomous planning in food retail

It's not news to food retailers: sometimes your stocks are too high, sometimes they're too low. Advanced planning now gives them entirely new options for solving the expensive problem—and cuts costs in the process.

by Nikolaus Föbus, Tim Lange, Markus Leopoldseder, and Karl-Hendrik Magnus

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Procurement planners in food retail today are not to be envied. They have to please customers who have never made more exacting demands on availability, freshness, and range. And they ignore such expectations at their peril: the competition is relentless, driving all market participants to seek out improvements incessantly. Those who stick to their legacy processes can only make comparable progress at the cost of mounting stocks, increasing write-offs, and an increasingly complex supply chain.

Internally, planners are often struggling with outdated IT systems that are isolated from each other, unreliable sources of information, and in some cases, largely manual and poorly coordinated processes. Forecasts are commensurately inaccurate and personnel expenses high. Externally, on the other hand, decision makers are faced with an increasingly unfathomable offering from digital service providers that—although they can process huge volumes of data with their solutions—cannot give retailers any advantages of relevance as long as they leave their operating models unchanged.

The future will likely be very different. A look at online retail already reveals the shape of things to come: leading companies are developing highly integrated planning systems that already use the most advanced analytics and machine-learning solutions available today. These high-tech methods, also referred to as "advanced planning," will, in the future, take control of steering in food retail as well. And they set exacting requirements on companies: they entail tapping the entire wealth of transaction data along with external parameters as sources. Retailers need a completely different process landscape, new capabilities, more computing power, and advanced algorithms.

Those who do a particularly good job of establishing advanced planning in their organizations stand to reap big rewards. Like an invisible hand, the system works autonomously, effectively, and efficiently. Planners only have to intervene in exceptional cases to check and make corrections. More than that, the system improves forecasting accuracy, as not only does it draw on multiple data sources, it also interconnects them using artificial intelligence and machine learning. At the same time, advanced planning enables an ever-tighter integration of stock management, procurement, logistics, marketing, and sales, leading to greater efficiency improvements and sales growth. This approach makes manual transfers between systems things of the past—process chains are no longer interrupted, and data remain consistent.

Areas of application across the entire supply chain

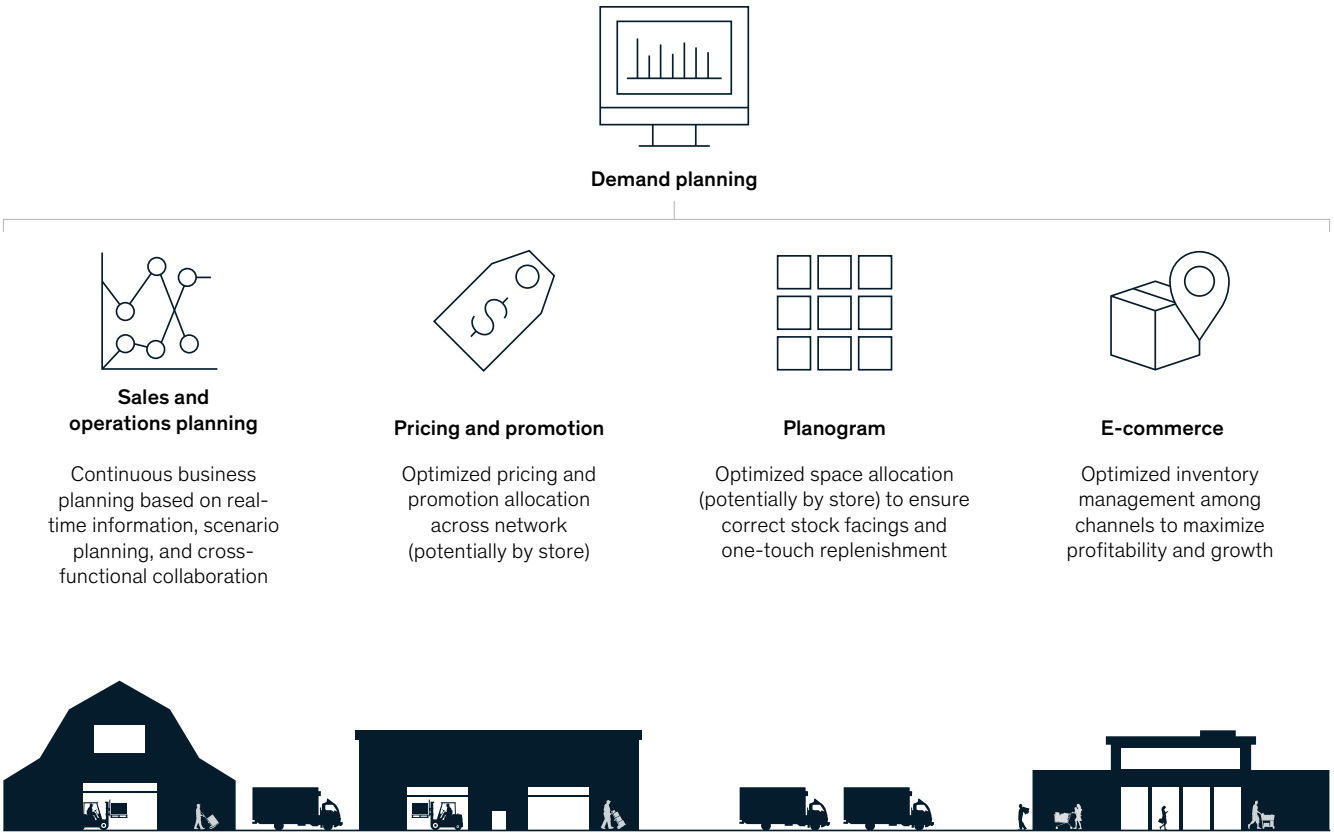
Food retailers can apply advanced planning to practically all activities along the value chain (Exhibit 1), with a focus on improved demand forecasting, which allows better planning of store processes or a sustained increase in the quality and shelf life of fresh produce:

— *Better demand forecasting.* Leading retailers have already come up with algorithms with which software can automate order processes by "learning" from data—also without having to rely on rules-based programming. This entails determining and continually optimizing all parameters that influence replenishment management—individually at article and store levels. Often, more than 50 parameters are factored into the analysis, among them prices and sales promotions (including those of competitors), cannibalization, local weather conditions, store-opening times, and holidays—and at a far greater level of detail than standard systems. This results in more precise demand forecasts and more cost-effective orders. On average, retailers with such planning systems report a 25 percent reduction in stock shortages in their fresh-produce assortment, at least a 10 percent decrease in write-offs, up to 9 percent higher gross margins, and a better inventory range. At the same time, the cost of inventory planning decreases by as much as 30 percent due to the higher degree of automation.

— *Better store processes.* Advanced planning also improves store-labor planning. That is

Exhibit 1

The future of planning builds on award-winning advanced analytics with real-time, action-based recommendations for all core functions.



because the system shows how much labor will actually be needed in a specific period of time—for instance, at checkouts or packing shelves in individual store departments. On top of that, precision forecasting helps to lower inventory in the store's stockroom radically—and in turn, reduces movement between shelves and the stockroom. This effect is amplified when shelf space per article is adjusted to the demand forecast, effectively turning shelves into efficient storage space.

— *Better quality of fresh produce and less spoilage.* Thanks to the more precise forecasting, retailers can order their goods from suppliers much earlier and with greater accuracy. Consequently, fewer

fresh articles are left unsold. Better forecasting also means increased planning reliability for suppliers. They can collect their harvests to match demand and thus reduce the field-to-shelf time. As a result, retailers can increase the level of freshness of their articles and reduce spoilage by up to 30 percent.

In view of such potential, many food retailers are showing a keen interest in advanced planning. However, they are still struggling with implementation in their businesses. For instance, the topic is frequently only pursued by a single function acting alone—typically, IT, logistics, or procurement. What is lacking is the embedding of the new method in the organization's operating model, along with a corresponding adjustment of all processes. Often, the backing from other functions is also lacking, as in the immediate term, they tend to see the introduction of the new system primarily as a disruption to their processes and the corresponding consequences for weekly sales. Such factors make complete implementation of advanced planning far too protracted and difficult for most retailers.

The make-or-buy question poses another challenge. Many retailers do not have the capacity and capabilities needed to develop an advanced-planning solution efficiently in house. If the retailer opts for an external solution, it has to negotiate difficult trade-offs. On the one hand, it might be interesting to choose a smaller, newer service provider with innovative solutions. On the other hand, large and established providers often offer pragmatic, if less innovative, solutions with many functionalities. Many retailers have a hard time even coming up with a workable assessment of the capabilities of individual providers.

Four determinants of success combined

The potential improvements are of such a magnitude that it pays to overcome these problems. And the experience of the early adopters shows that in food retail, too, advanced planning leads to success, if companies can meet four preconditions:

— *Clear, holistically set course.* Optimizing planning has to be one of the company's overarching objectives and be strategically embedded accordingly. It is the technology that supports the strategic transformation, not the other way around. This requires the committed support of senior management and of all organizational functions, in particular. That is especially the case when initial setbacks create uncertainty.

— *Most advanced technology.* A central determinant of success is the choice of planning software and its gradual integration across all organizational units. To this end, retailers should first draft a requirements profile tailored to their needs. Pilot projects and experience from other stores can then help ease the selection process. In other words, the software is at the end of this process, not the beginning.

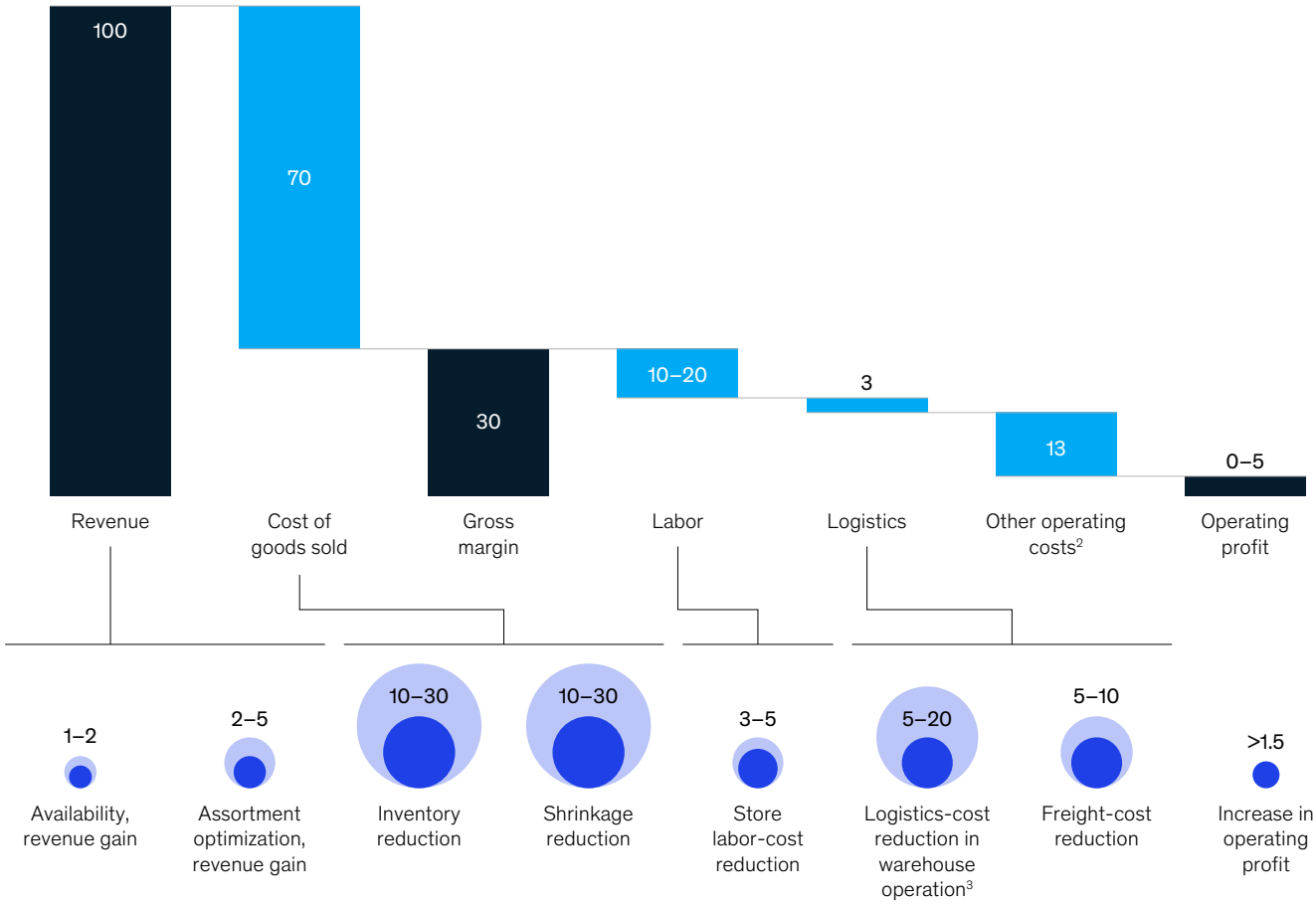
— *Rigorous adaptation of the operating model.* The full potential can only be captured when processes, structures, and employee skills are fundamentally transformed. In order to lift the operating model to this next level, processes should be redesigned, metrics reworked, objectives and employees' performance dialogues adjusted, new roles created, responsibilities along processes reallocated, capabilities needed built up, and specialists recruited.

— *Intensive change management.* A comprehensive advanced-planning transformation affects many stakeholders and entails new requirement profiles. Many of those affected often respond with skepticism or even open rejection. So it is especially important to explain to everybody involved what the benefits are, to win their enthusiasm for the new system, and to celebrate early successes visibly. It is the combination of all four determinants of success that actually allows retailers to make the most of all the technological capabilities that advanced planning has to offer and thereby unfold the full performance potential (Exhibit 2).

Exhibit 2

All major profit-and-loss items are positively influenced by advanced planning.

Standard profit and loss, illustrative, % of revenue[1]



[1] Varies significantly among retail types.
[2] Includes rent and maintenance.
[3] Includes labor cost.
[4] Impact assumes range of different tools (eg, demand forecasting, inventory management, workforce management).

Three steps to success

So where should retailers start? A three-step approach has proven successful in practice. The first step is to analyze in detail the current planning process: Who is involved in the process? What tools are they using? How high is the degree of automation? Where are there quality problems, such as with regard to availability and stock quantities? Once these questions have been answered, it is possible to develop specific use cases. What is decisive at this stage is a clear orientation toward business impact, as well as a precise understanding of the effects of the changes introduced on the various processes, structures, and employees concerned.

In the second step, the use cases have to be assessed by reference to their potential for improving revenue, margins, costs, and stocks, and the cost of implementation is estimated. Starting with the preferred use cases, the company then derives the vision for its advanced planning. The system's sustainability then has to be secured with the aid of a stable business case. In this context, the company should aim for a balanced mix of quick wins and long-term improvements.

In the third step, the new planning methods are piloted in one or two use cases—for instance, in fruit and vegetable planning and in automated replenishment. The aim is to test the improvement potential of advanced planning in real-world operations. When designing the pilot trials, a pragmatic, test-and-learn approach is recommended. After all, the objective is not so much to come up with a perfect design on day one but rather to reiterate quickly and continually improve processes as experience is gained. In parallel, the operating model should be adjusted to the new requirements, and the digital know-how needed should be built up. The latter point, in particular, is often underestimated, even though recent studies show that these soft factors are more frequently the cause of failures in digital transformations than are shortcomings in technology or data quality.

Once the pilot programs are completed, the organization is ready for a wider rollout. To this end, the road map is adjusted to take into account the experience gained in the test runs, and the new planning mechanism, including the operating model, is then applied to the entire assortment. Organizations can then expect to see measurable improvements reasonably quickly—often, within the first 12 months.

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