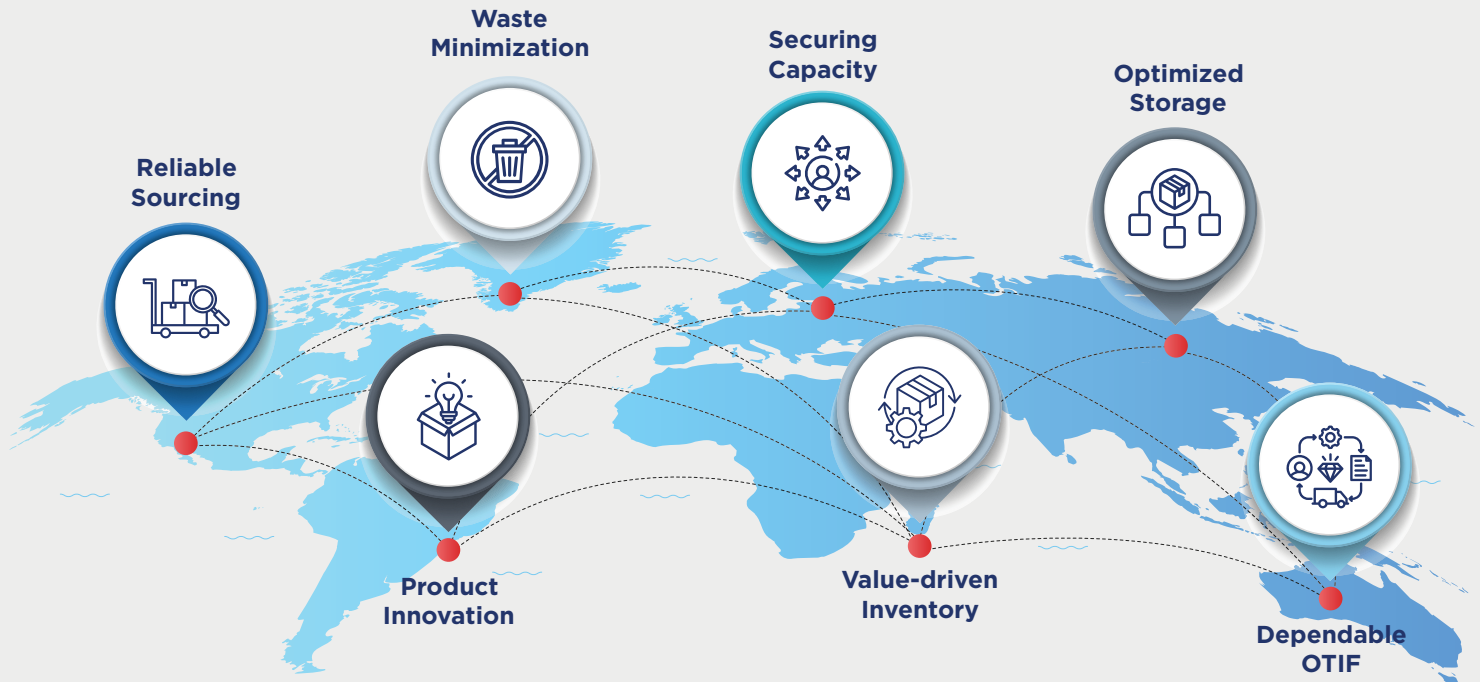


## **TO PUSH OR TO PULL?**

That is the question in food & beverage supply chain planning

## DECISIONS HAVE CONSEQUENCES

This is especially true in supply chain planning, where every decision impacts activities that are the backbone of the organization. The below activities make a tangible difference in profitability, sustainability, customer satisfaction and retention.



In an ideal world, all of the above should already be included in your planning process, ensuring desirable outcomes. But, we live in a complex environment with many variables. We know that making the right decisions at the right time requires the right planning – and that isn't easy.

Most of the decisions you make involve some form of push or pull choices. And you're never really certain whether you're choosing the best option. In a world where disruptions are inevitable and market demands are volatile, how can you ensure consistently good plans in the face of such supply chain complexity?

In this whitepaper, we offer a different path, a strategic framework that solves intricate planning puzzles in the food and beverage industry. One that helps you improve your company's position on all critical activities. We suggest implementing a hybrid push-pull planning approach. This approach provides an end-to-end view of your entire supply chain, powered by real-time data, clear dashboards, and actionable KPIs. This is essential because push-pull decisions can occur at any point within your operations.

## WHAT DO WE MEAN BY PULL, PUSH, PUSH-PULL PLANNING?

### Pull Planning

Pull planning tends to focus on the more immediate challenges of fulfilling demand. It's the style of planning commonly supported by MRP solutions and manual planning processes. A pull strategy responds to customer demand by initiating production, which then triggers the need for intermediate products. This cascading effect pulls products through the supply chain step by step.

#### Pros

- It's simple - "I have a demand. How do I fulfill it?"
- It's fast. By breaking your organization down into silos, decision-making is localized.
- Focuses on a few local KPIs.

#### Cons

- Limited scope doesn't consider the values and constraints of the broader organization.
- Encourages siloed thinking and the proliferation of spreadsheets and local knowledge, leading to the frequent reworking of plans.
- Unstable demand requires flexibility in production while pull planning can amplify the bullwhip effect.

### Push Planning

Conversely, push planning looks at the value decisions across a broader planning horizon. It recognizes the value of materials and reduction of waste caused by factors such as shelf-life or product expiry, identifying opportunities to make the best use of expiring or soon-to-be obsolete products.

#### Pros

- Reduce waste by actively recognizing expiry dates.
- Proactively look for opportunities to drive value from co-produced products. For example, chicken legs when there is demand for chicken breast.
- Where excess stock or expiry is inevitable, look at all down-grade options to identify the most efficient choice.

#### Cons

- Does not work in isolation, since products are consumed by demand.
- Requires the balancing of financial and production constraints.
- Requires proactive planning, which isn't always easy or even possible without the right tools.

### Push-Pull Planning

Push-pull planning is a hybrid strategy that aims to leverage the benefits of both approaches, not only looking at the best way to fulfill demand, but also how to minimize waste and drive value from inventory and co-produced products. The earlier you balance the pull with the push, the more chance you have of maximizing value.

#### Pros

- Takes a holistic view of the supply chain, optimizing demand and inventory, reducing waste, for improved profitability.
- Integrates planning processes, shared knowledge, and planning disciplines to create cohesive plans.
- Encourages the use of common KPIs that provide insights and drive the right decisions across all levels and areas of operation.

#### Cons

- Your focus needs to expand beyond fulfillment and replenishment, with strategic consideration of value and opportunity.
- Planners must consider longer timeframes and make strategic decisions on when to fulfill demand to maximize the potential of pushed products.
- Requires a shift in culture and mindset. The holistic nature of the strategy requires appropriate tools to support the strategy.

**With push-pull planning, you move from just thinking about “How do I fulfill this demand?” and add “How do I maximize the value from the products I have, and any secondary\* products that are produced?”**

**Example:**

Let’s look at an example - Consider a poultry processor. Instead of just fulfilling orders for chicken breasts and thighs, a push-pull mindset leads to questions such as: How can we better use the co-produced portions? Can they be used in other ready-to-eat products/different markets that offer profit opportunities?

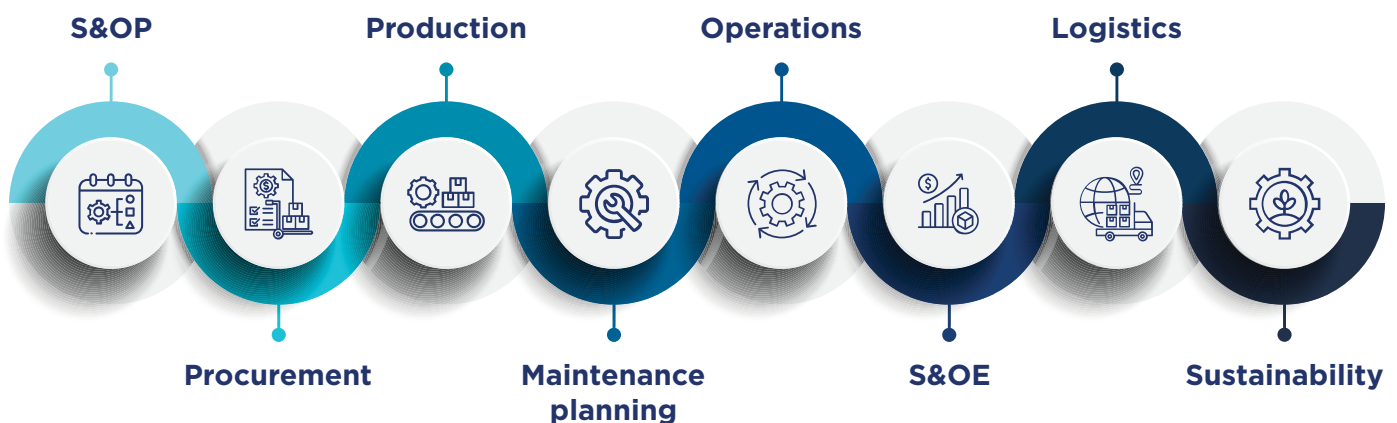
Push-pull planning encourages you to see the entire bird as a source of potential value, leading to a reduction in waste, and encouraging new revenue streams. However, there are other factors and processes to consider.



## THE ELEPHANT PARADOX: SHOULD WE BREAK DOWN COMPLEXITY?

### The Situation

In food and beverage manufacturing, the supply chain is a complex network of interconnected processes. Each stage, from forecasting demand to ensuring products reach consumers on time, involves a series of complicated decisions that can have significant impacts on efficiency, costs, and overall sustainability.



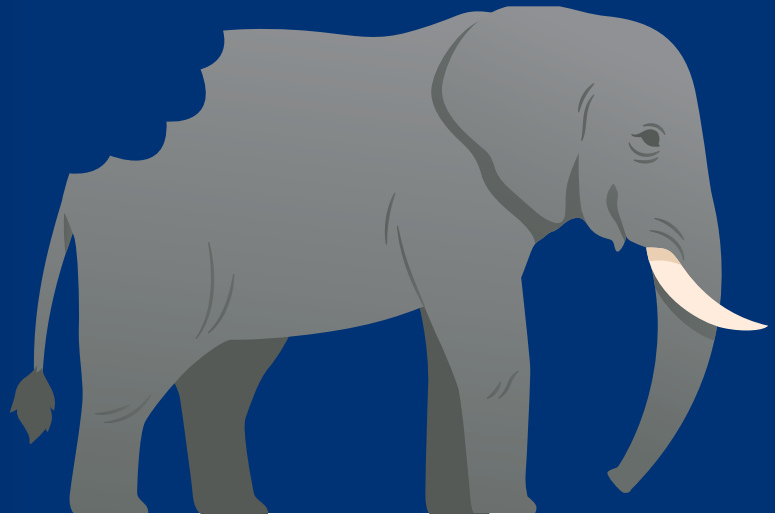
The illustration above shows many such intricate processes. And you could certainly add more to it. There are also other factors to consider, including management reporting, forecast generation, and comparison to actuals. Challenge is probably an understatement!

\*Secondary products are products made using by-products from the main production process.

To solve complex supply chains, the following adage is often applied:

***“There is only one way to eat an elephant: a bite at a time.”***

***– Desmond Tutu***



### **The Complication**

Desmond Tutu was not wrong. Many companies break down their operations into ‘bite-sized’ departments and planning layers. Planners often feel that this is the only way to manage the complexity of their planning puzzle.

Over time, departments develop siloed thinking, each with its own perspective and focus. Often, they also have their own systems/software in place or are forced to use a business monolith like SAP or MS Dynamics 365. Such an approach brings up important, fundamental questions:

### **The Questions**

- 1 Is it efficient to operate in silos?**
- 2 Can you cost effectively manage operations when every department has its own separate system, processes, and KPIs?**
- 3 Does a generic ERP solution provide the right tools and data so that each specialized department can make the best decisions?**
- 4 Do you have clear goals and KPIs that support your planning teams to maximize value and delight your customers?**

### **The Answer**

The answer to most (or all) of these questions is probably “no”. Breaking up your supply chain into silos and using a solution that doesn’t fit your needs often has unseen/unnoticed results. You miss opportunities, you risk missing agreed service levels, and lose overall visibility and control. On top of this, such complexity can also occur within pockets of the organization.

To ensure your departments work in collaborate seamlessly and make informed decisions, you’ll need push-pull planning – not just for products, but also for planning decisions.

## WHY PUSH-PULL PLANNING? HOW WE WORK IS JUST FINE!

Many companies plan with their ERP solutions. But have you ever looked under the hood? In most cases, such systems offer basic planning, and do not provide the decision-support that is designed to help your business achieve long-term desirable outcomes. Due to this limitation, planners need to find workarounds and often use spreadsheets to fill the gaps. They create 'crib sheets', supported by standard conversion factors and production rates, to make a plan in the available time.

To illustrate what we mean, let's use a rather common occurrence in planning decisions – substitution. 'Substituting material by planning' is one example from a well-known ERP. You're producing vegetable soup. It requires a range of ingredients. If **Ingredient\_A** (the preferred option) is unavailable, it can be replaced by **Ingredient\_B** or - as a last option - **Ingredient\_C** can be used.

Similar to Desmond Tutu's advice, the recommendation is logical. But are these decisions optimal?

### Consider the following scenarios:

1 If alternative **Ingredient\_B** is required the following day, then opting for **Ingredient\_C** would be a better decision. Simplistic prioritization, on a decision-by-decision basis, could potentially cost you money and negatively impact your ability to achieve desired SLAs.

2 Let's add another dimension to this: material price. If **Ingredient\_B** costs €10 per unit and **Ingredient\_C** costs €12 per unit, you could say that using **Ingredient\_B** is the better choice.

But, again, this may not be the whole picture. There are other factors that impact your decision:

- **Lead times:** If **Ingredient\_B** has a long lead time, for example, factoring in target inventory levels would be reasonable.
- **Shelf life:** If **Ingredient\_C** has a shelf-life expiry, using it before it expires is a good decision. If it expires before you use it, you may have to pay for its disposal. Why would you throw away perfectly good material?
- **Usability:** If **Ingredient\_C** was a material for an obsolete product line, and you have it in stock, you're not only paying inventory costs but also taking up space for a product you cannot use.

3 Let's consider more fundamental questions: Does the product need to be ready today? Or should it be produced elsewhere?

### Your ERP system may be great at identifying what you have, what it costs you, and where you have it. But it cannot answer:

- Why do we have this ingredient?
- Can I use my available resources and products more efficiently?
- What do simplistic planning strategies such as priority substitution cost me on a daily basis?
- Do I need this material in the coming months or is it excess stock?
- What does it cost me to hold it?
- Is it contributing to my inventory costs without adding value?
- If I use the material, am I improving my cash flow?

It's clear that simple prioritization doesn't deliver the value you'd want. If the above recommendation is an example from published information for your planning system, what are you missing out on and what is it costing you?

## SHORTCUTS? ARE THEY REDUCING OUR GAINS?

Push and pull strategies are not new. Humans have been implementing push and pull strategies since time immemorial. Our ancestors would have used pull strategies to hunt and kill animals for food and push strategies when they kept and managed livestock to supply milk.

What has changed is the complexity of modern supply chains. Today, good plans often use a hybrid push-pull approach. We've observed the limitations of commonly used ERPs for fundamental material-substitution-related decisions.

This is why you have planners as your experts to make these decisions. They need to balance their choices and make judgment calls based on their experience and how they see the plan evolving, ensuring it is completed within the available time period.

There may be "only one way to eat an elephant" but each planner will have their own way to consume it. Here are some common examples:

Example	Pros	Cons
<p><b>Plan day by day, demand by demand and adopt siloed thinking</b></p>	<p>Planning in daily buckets reduces the overall complexity of the plan. Siloed planning breaks up the plan into manageable sections, avoiding the need to address the entire plan at once.</p>	<p>Lack of visibility across different planning buckets can increase waste and reduce overall efficiency.</p>
<p><b>It worked yesterday, try it today</b></p>	<p>Seen as reducing risk, planners are more confident in their decisions</p>	<p>In truth, no two days are the same. As markets change, plans do not keep up with trends.</p>
<p><b>Use gut feel and magic numbers</b></p>	<p>Planners feel in control and can perform calculations quickly, allowing for swift decision-making.</p>	<p>Can lead to inaccuracies and inefficiencies: Variable levels of safety margins can impact efficiency and adherence to SLAs. One-size-fits-all only actually appropriate for a small subset, for most others either too big or too small.</p>
<p><b>Rely on 'folklore' or 'tribal knowledge'</b></p>	<p>A quick fix for system and process issues</p>	<p>Knowledge is not shared, empowers the few, and disenfranchises others.</p>
<p><b>Use localized or personal spreadsheets and focus primarily on fulfillment.</b></p>	<p>This approach provides a simple way of storing data and simplifies calculations. By reducing the number of KPIs and metrics considered, the time required to create a plan is significantly reduced.</p>	<p>Information is vulnerable and isolated. Spreadsheets can become unwieldy, inflexible, create a bottleneck or introduce an over-reliance on individual knowledge. Plan doesn't cover all KPIs so overall value is lost.</p>

Planners use such decision shortcuts to simplify the planning process – to reduce the breadth and depth of choices. But these decisions may fall short of what's best. They are often the root cause of inefficiencies.



## PUSH-PULL PLANNING WHERE'S THE VALUE?

Every planner aims to make the best plan, every time. But there are multiple elephant-sized problems: if decisions are made in silos and/or the planning horizon is only short-term, how do we know we have a good plan, let alone the best one? The short answer is we can't know.

Push-pull planning with an integrated supply chain – when all your departments work as a cohesive planning unit rather than distinct kingdoms – makes this possible. It helps with resolving that elephant. Let's dive into why exactly we need push-pull planning:

### An integrated supply chain:

Complete visibility helps you identify opportunities with clarity. If you extend the planning horizon, you can better identify bottlenecks, and balance periods of peak demand with times where there is spare capacity. By breaking down siloed thinking, your operations start to work as one, planners can not only see the impact of changes in their own area, but also across your operations.

#### Example:

Throughout the year, seasonal demand can result in 'wandering bottlenecks'. Most producers need to prepare for peaks caused by summer demands, such as BBQ season. We know it will happen but when and what will the demand actually be? Planning on a longer horizon allows planners to be better prepared and create strategies in advance to best fulfill the demand. Breaking down silos allows planners to understand the options for transferring production between lines and locations, as well as how best to use the available raw materials and co-produced products.



### Decision optimization:

In isolation, decisions can seem logical. But each decision has an impact whether that's positive (like fulfilling demand) or negative (like incurring costs). Of course, decisions often need to align with the needs or goals of others. Let's make this concrete with a sports analogy. In a rowing team, if the rowers do not all pull in sync, then performance and efficiency is diminished. However, when the rowers' decisions are aligned, the boat glides through the water more efficiently, in the right direction and toward a unified goal. With a coordinated effort, you will have more confidence in the plans you produce and reap the advantages of improved decision-making and planning.



**Example:**

We could use our ERP example above. Choosing materials in a simple priority list seems logical, but in reality the decisions are not optimized. One way is choosing alternative recipes, although you still need to maintain product quality, taste and for example mouthfeel of a product. If you only have a single recipe or formulation, then you are more susceptible to changes in raw material availability and price. Optimizing your decision-making allows you to maximize value, while still delivering a high quality product and service. If the cost of olive oil increases, are there alternative recipes that can substitute other oils? If you have a surplus of a material can you drive value by using that, rather than buying in the regular ingredient.

**Empower planners to make better decisions:**

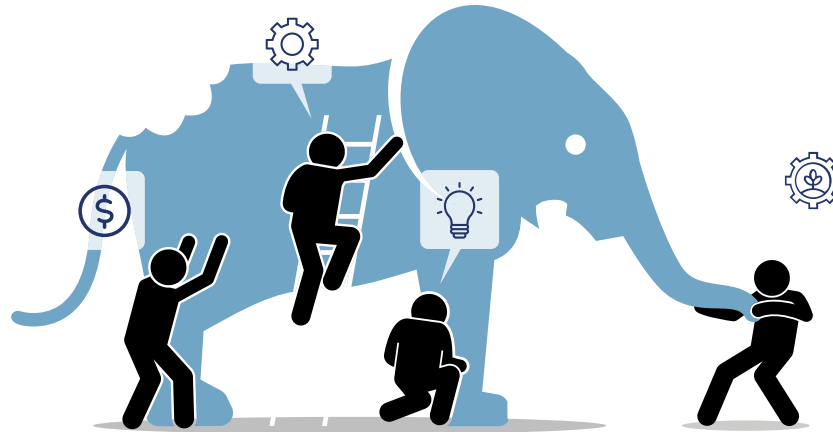
By defining the metrics that matter the most, planners have clear and consistent goals no matter what department or location they work for. As planners make changes, they can see not only how the changes affect their own area but also all related sites and stakeholders. Visibility, shared knowledge, and clear KPIs ensure everyone works towards those goals.

**Example:**

In meat production, product shelf-life is a constraint, making correct decisions on product downgrading is key to profitability and waste reduction. By defining a set of optimization strategies and setting meaningful KPIs, planners can consider many more options and be presented with the best choices based on the underlying market and production conditions. Sharing knowledge in a push-pull planning environment empowers planners to focus on relevant business factors such as customer satisfaction, efficiency, and waste reduction.



Eating an elephant one bite at a time doesn't quite tell the full story. Instead you should ask: why are my planning problems the size of an elephant? You might not even be aware that you have such problems, but they will be costing you margin. Adopting push-pull planning is your path to proactively improving service, reducing waste and increasing margin.



Push and pull decisions can happen anywhere in your operations and along the supply chain. Push-pull planning with an integrated supply chain gives you a holistic view across your entire operations and empowers your planning teams to work as one. It encourages collaboration and fosters an environment conducive to continuous improvement.

**Are you interested in discussing how to address the elephants in your supply chain?  
Get in touch to find out how push-pull planning can drive value in your operations.**

[Talk To Us](#)

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## ABOUT THE LOGIC FACTORY

The Logic Factory (TLF) is a global supply chain planning and optimization consultancy whose mission is to help customers make lasting performance improvements and realize value within their operations. TLF offers high-quality planning, scheduling, and optimization solutions.

A dedicated, highly qualified team of consultants provides ongoing, continuous services in the form of hosting, maintenance, and support. With a firm belief in building long-term relationships based on mutual trust, TLF works in partnership with customers to drive business growth, ensuring operational goals are met within the most cost-effective framework.