



Whitepaper

What? Integrated Tail Supply?

In the evolving landscape of supply chain management, the concept of 'Integrated Supply' has stood the test of time, marking its relevance for over four decades. But what exactly is Integrated Supply? Why is it important? And can this approach provide a more robust, coherent and efficient solution for the procurement and supply of tail items?

The term 'Integrated Supply' has been used for over 45 years, chiefly in the US, with many shades of meaning. For an academic definition, The Logistics Institute at Georgia Tech suggests "*The integrated supply chain is one that has full responsibility across the corporation (including different divisions, business units and geographies) for the planning and management of all activities involved in end-to-end supply chain processes including sourcing and procurement ... and all logistics management activities.*" Integrated Supply is about creating a single, uniform value chain to procure goods of all kinds. In such a system, sourcing and purchasing, storage and delivery, are planned and executed as a seamless business process.

It works across multiple sites, multiple production and product lines, and multiple users.

The result is a supply operation with a single set of strategic business objectives and policies. It is synchronised across the different physical processes. It works to KPIs which are optimal for the organisation, not for individual departments, and it promotes long term internal and external collaboration.

In this context, 'Integrated' is not synonymous with 'outsourced', but as we will see, for both MRO and BOM tail supply management this is often the most effective approach.

So what's the issue?

An Integrated Supply approach is commonly used to procure major parts and components, where the cost-to-benefit ratio is clear. However, applying the same principles to thousands of tail items is a challenge due to the internal time and resources required. Yet, tail items are far from trivial. Across these categories there is the risk that disruptions in the supply process could lead to production halts and financial losses. At the same time, maintaining large safety stocks is prohibitively expensive. Purchasing managers understand the importance of striking the right balance, but an unintegrated supply system often leaves them without the visibility or time needed to make solid decisions. This lack of trust in the system can exacerbate the problem, leading to actions that worsen the situation as illustrated in the figure below.



Figure 1: The downward spiral of an unintegrated supply chain

Traditional 'solutions' can create new problems

Tail supply management involves large numbers of low value transactions across hundreds of suppliers and thousands of parts. It is often not possible to use classic techniques like competitive tendering and contract negotiation that would be appropriate for high value and high volume supplies. There is a lack of time, human resources, cash, or knowledge.

Trying to establish policies on safe stock levels or optimal stocking locations across large numbers of SKUs and often across many sites and/or users is complex. BOM tail part requirements are known, but demand for the same part may be spread across many different orders, and perhaps under different part identities. This makes it hard to maintain usable data.

There may be a need to create a pool of service parts in addition to those needed for production. BOM tail parts can therefore become 'tail' inventory, and while customers' planned maintenance requirements can be forecast, breakdowns cannot. For MRO items, usage may be inherently unpredictable. The future availability of less common parts, perhaps from small or specialist suppliers, may be uncertain. Suppliers may change their activities, merge or go out of business and it is hard to maintain up-to-date market awareness.

Stockholding

The most obvious response is to stock parts that might be needed. One American study found that in a typical production plant, around 30% of spare parts for production machinery sitting on shelves were unnecessary, while more than 60% of all stocked spares had not been used in three years (1). In addition, only about 35% of spares were both critical to operations and not easily available on short lead times (and thus need to be held as stock).

Stockholding is expensive, adding up finance costs, insurances, warehouse costs, write-offs for degradation and obsolescence. Industry benchmarks range from 12% to 35% of the inventory value, or textbook figures of 25% per annum (2).

Replenishment routines

Among the other tactics, replenishment routines can simplify the processes: Kanban, or 'One Out-One In' policies for example. But in isolation these are insensitive and require constant attention: if there is any significant fluctuation in demand there is the risk of stock-outs, on the one hand, or creating a permanent excess of inventory on the other. Additionally, the assortment requires periodic updates to the latest user requirements.

Minimum stock levels

For frequently rotating stock, getting the supplier or distributor to maintain minimum stock levels (Vendor Managed Inventory) can cut down administration through eliminating purchase orders and creating consolidated billing. But pricing is unlikely to remain keen in what is effectively a single source market.

Consolidation at distributors

Some firms choose to concentrate their supply with a few distributors. That can create administrative efficiencies, but the buyer loses sight of the total market. Prices may not be the best available and the source of supplies may be influenced more by the wholesaler's commercial relationship to the supplier than by what is best for the user. The wholesaler will be making its own decisions about what to stock, so no guarantees for item availability.

These and others are tactics to relieve pain and pressure do not make up a strategic solution to the tail supply challenge. There is no overall visibility of performance or risk. There are many different processes and procedures across items and categories, and there is no framework on which improvement can be built.

1: *Production Spare Parts: Optimizing the MRO Inventory Asset*, Eugene M Moncrieff, Michael P Reynolds, and Ronald M Schroder, Industrial Press.

2: *Inventory Carrying Costs: Current Availability and Uses*, Lambert et al, International Journal of Physical Distribution and Logistics Management, Vol 12, Issue 3

Challenges that will be solved with Tail Supply Integration

Without a strategic and integrated approach, businesses face real challenges in sourcing, inventory management, and process control of tail supply. See below the common challenges that often result in unnecessary expenditure, and lost opportunities for improvement.

Sourcing

- The huge number of tail suppliers to manage with limited resources.
- Suppliers are often small and can't support labour-saving e-commerce and process automation systems.
- The struggle to bring together sites or divisions to create leverage and focus on ongoing cost down initiatives.
- Poor data quality, leading to a lack of insight and control.
- High supply chain risks in tail items – any supply failure could halt production or delay customer service.

Inventory

- Rising inventory values as product variety increases and availability requirements tighten.
- Inventory management rules and practices that differ per site or within operations on the same site.
- The risks of unscheduled downtime countered by over-stocking.
- Inventory levels that are based on gut feeling or historical precedent and not reviewed on a periodical basis in line with the latest demand patterns.

Processes

- The number of stakeholders across the business that optimize costs and impacts for their own function rather than across the wider business.
- The complexity of IT systems, business processes, and structures, that often differ from site to site, making it hard to introduce common workflow and automation solutions.
- Ineffective management of tail parts leads to inefficient operation and wasted resources and capabilities, not only in Procurement but in Maintenance, Production, and elsewhere in the process.

Often, tail spend is around 20% of site spend but 80% of the transactional workload. And while facing these challenges the organisation is missing several opportunities. For example building deep relationships with strategic suppliers to enable technological, service and business innovation. The management is busy 'firefighting', skill and talent that could be better applied elsewhere in the business is being squandered. The chance to simplify processes and streamline inventory, which would not only reduce the cash tied up in stocks but also the commitment of labour and assets in warehousing, administration and IT, is missed.

Integrated Supply as a strategic solution

The goal of Integrated Supply is to establish a unified, holistic approach to managing tail spend areas, aiming to reduce overall business costs and enhance efficiency. It provides users, managers, and suppliers with a single point of contact and a shared, accurate source of information. This approach is data-driven and performance focused.

Integrated Supply encompasses three key areas: sourcing, inventory, and processes. The individual elements within each area must be seamlessly connected, the three areas must be integrated into a cohesive system, and the resulting structure must align with the organization's broader strategies and objectives.

Value drivers of Integrated Tail Supply



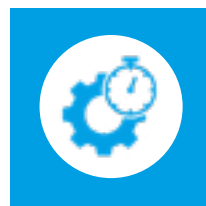
Sourcing

Optimizing supply



Inventory

Active logistic control



Processes

Reduce workload

This vision of Integrated Supply does not mean the same procurement strategies and tactics are used for every category or individual SKU. On the contrary, the objective is to enable management to determine the optimal solution for each case. That may be a single central Purchase Order; it may be delegated authority for users to call off against a centrally negotiated framework; and VMI may be an appropriate tactic. The whole toolbox is available, but within a methodology that eliminates conflicts and ensures alignment with the corporate objectives.

The way to Tail Supply Integration

Alignment is key

In order to harvest the full potential of the integrated approach to tail supply, it is essential that the core characteristics of your tail are well understood and supported. Only with full transparency, cooperation and support from the site manager to the production line engineer, the best results in reliability, cost effectiveness and risk reduction can be achieved. This in turn requires full commitment from senior and board-level management.

It also requires senior management to support fundamental change in some areas of operations, for example in reducing the purchasing autonomy of individual facilities. This may be unpopular, and will require visible support and encouragement from the top. The partnership approach has to be sustainable because integrated supply is a continuing process and not a one hit 'fix'. The tail reduction process is never-ending, as while requirements are consolidated and the supply base is thinned out, new requirements are continually added and new suppliers discovered.

Outsourced tail supply

There's a growing trend to outsource tail management to an independent, brand-neutral Integrated Supplier that takes over responsibility for sourcing and procurement including inventory control, logistics and related business processes within a defined set of requirements.

While the Integrated Supplier is constantly refining its supplier base, for the customer the relationship is with one strategic supplier, rather than hundreds of individual vendors as before.

By partnering with an Integrated Supplier to manage tail supply, pricing can be controlled, risk managed, process cost driven out, and improvement generated. Tail supply procurement then moves from being a cost center to a source of added value, while procurement professionals are freed up to give more attention to larger and more complex contracts.

Implementing integrated supply

The starting point to integrated supply is to aggregate demand and product information across all the sites, functions and users within the organisation. The Integrated Supplier will analyze the tail spend to determine the potential for achieving higher reliability, improved quality and increased cost effectiveness in the supply chain. They strive to resource items to suppliers with whom global contracts have been agreed, thus creating volume benefits. They will also, in consultation with the relevant stakeholders in for example design, engineering, production, and warehousing, seek to propose substitutions of better or more cost-effective products, or more reliable suppliers.

Standardization leads to a reduction in the total number of managed tail items. Consolidated orders are typically larger, increasing attractiveness to suppliers. It will reduce the total number of suppliers involved and orders flowing through the process. With fewer part numbers to manage, it also becomes easier to optimize stocking levels and locations, and to gain insight into what is actually in the system. It is also easier to see if it is appropriate to transfer or share stocks between users and locations. All this increases confidence in the system, and delivers value to manufacturers by assuring a reliable tail supply chain at the optimal cost.

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can work for your business?**

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