



Unifying the Private Fleet with Purchased Transportation

Achieving Lower Costs and Higher Service via Dynamic, Omni-Mode Integration of Private Fleet with For Hire Operations

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Introduction

Companies choose to use a private or dedicated fleet¹ for many different reasons, such as ensuring capacity and service, branding, scheduling flexibility, and fulfilling requirements for specialized equipment, configurations, and capabilities. The perennial challenge for private or dedicated fleet is to continuously find new ways to take cost out of the operation, while enhancing customer service. Decisions about when and how to use 'for hire' services vs. the private fleet are often made using static rules (such as distance from the DC) during the planning phase. Conversely, unplanned last-minute events can also result in suboptimal decisions, expediting, and higher costs. A more promising approach is emerging: taking the dynamic and holistic approach of looking at fleet and for hire together.

The fleet is typically managed separately from for hire transportation, creating isolated 'islands of capacity' and missed opportunities to optimize across modes. Once integrated, new opportunities are realized, often through seemingly counter-intuitive choices, using carriers where you previously used the private fleet or vice-versa.

Management of a company's own fleet and purchased transportation occupy two different worlds within most firms. Tremendous benefits can be realized by integrating and optimizing across these two worlds.

Similar to the way omni-channel integration² has become critical to the success of retailers, leading firms are starting to do 'Omni-Mode Integration' for transportation. This entails having visibility across all available modes (private fleet, common carrier, parcel, rail) with the ability to optimally select the best one to fulfill any given order. Just as with omni-channel integration,³ tight integration with execution systems is critical for the success of Omni-Mode Integration. Selecting a mode, only to discover that you do not have the capacity, is not a winning strategy.



¹ In this paper, the term "fleet" or "private fleet" is meant to include both private and dedicated fleets, unless noted otherwise.

² Omni-channel integration requires accurate inventory visibility across all locations and potential sources (stores, regional/central DC, supplier direct ship) with the ability to select the best source to fulfill any given customer order.

³ Omni-channel order promising demands tight integration with operational systems to consider not only whether there is available inventory in a given location, but whether there is enough labor and other capacity to fulfill the order. Promising something you can't deliver does not make for satisfied customers!

Omni-mode Integration: A Holistic and Dynamic Approach

Bringing Two Worlds Together

A company's management of its own fleet and purchased transportation occupy two different worlds within most companies. Typically private or dedicated fleet management is done by one team and for hire transportation is managed by a separate group, each with their own unique set of processes and systems.

Private Fleet's World

Private fleet managers are responsible for the overall management of the equipment, drivers, routes, processes, and ultimately the outcomes. They are concerned with asset utilization, scheduling of individual drivers and vehicles, and ensuring compliance with various regulations such as driver hours of service and fuel taxes. They use route planning systems to create multi-stop routes taking into account service times, detailed mapping, driver skills, pickup and delivery windows, and many other factors. They use modern dispatching solutions to dispatch and track trucks in real-time.

For Hire's World

Managers of purchased transportation focus on ensuring they have a reliable set of carriers that are meeting contract and performance requirements. Rather than managing individual drivers, or utilization, or compliance, they tender loads and try to get the lowest cost by taking advantage of pooling, shipment consolidation, and continuous move opportunities. They expect the carrier to take responsibility for the details of the equipment, personnel, regulatory compliance, and performance.

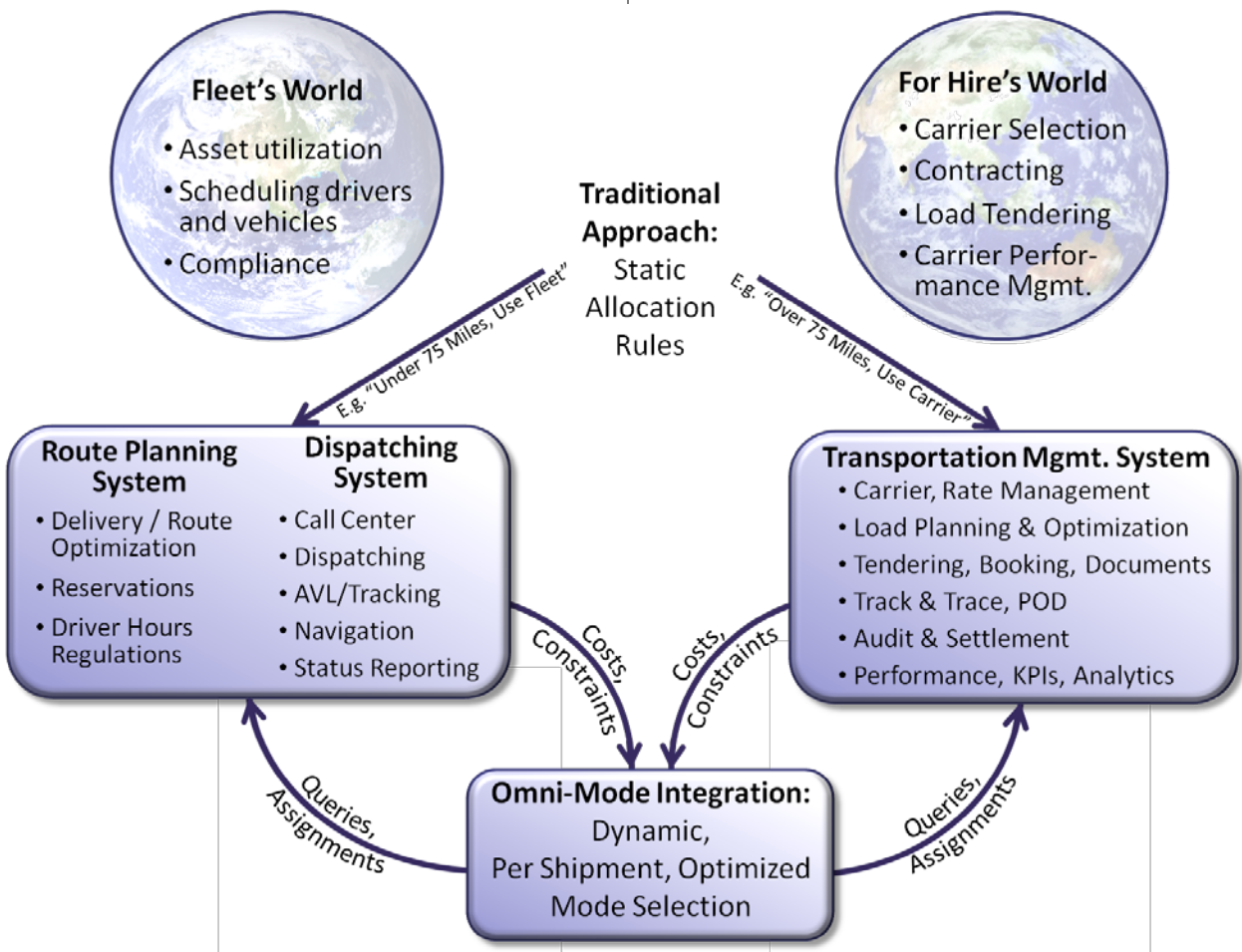


Figure 1 - Omni-Mode Integration: Bringing Together Fleet and For Hire Worlds

Static vs. Dynamic Mode Selection

Decisions about whether to use the fleet or use for hire transportation for individual shipments are usually not made on a dynamic basis. Rather these decisions tend to be based on a set of static, often simplistic rules, such as whether the destination is inside fixed geographic boundaries, inbound vs. outbound, and a fixed set of backhaul routes. This is usually done for the sake of simplicity, since attempting to optimize across these modes can be complicated.⁴

Decisions about whether to use the fleet or use for hire transportation for individual shipments are usually based on a set of static, often simplistic rules. The assumptions underpinning these rules become out-of-date. This approach cannot optimize mode selection dynamically based on actual shipment destinations and other factors.

Furthermore, static rules are based on a set of assumptions about the business, routes, costs, and expected shipment volumes from and to specific locations. Even when assumptions are initially correct, they become out-of-date, leading to contracts and shipment decisions that become increasingly suboptimal and wasteful over time. It is very difficult to predict the true logistics cost far ahead of time, since so many of the cost drivers are dependent on changing factors: both longer term factors such as evolving customer order patterns over time, and day-to-day factors such as driver and equipment availability and what destinations you and your carriers are delivering to on any given day. Here are some examples of typical static approaches and how they can be improved by taking a more dynamic and holistic approach:

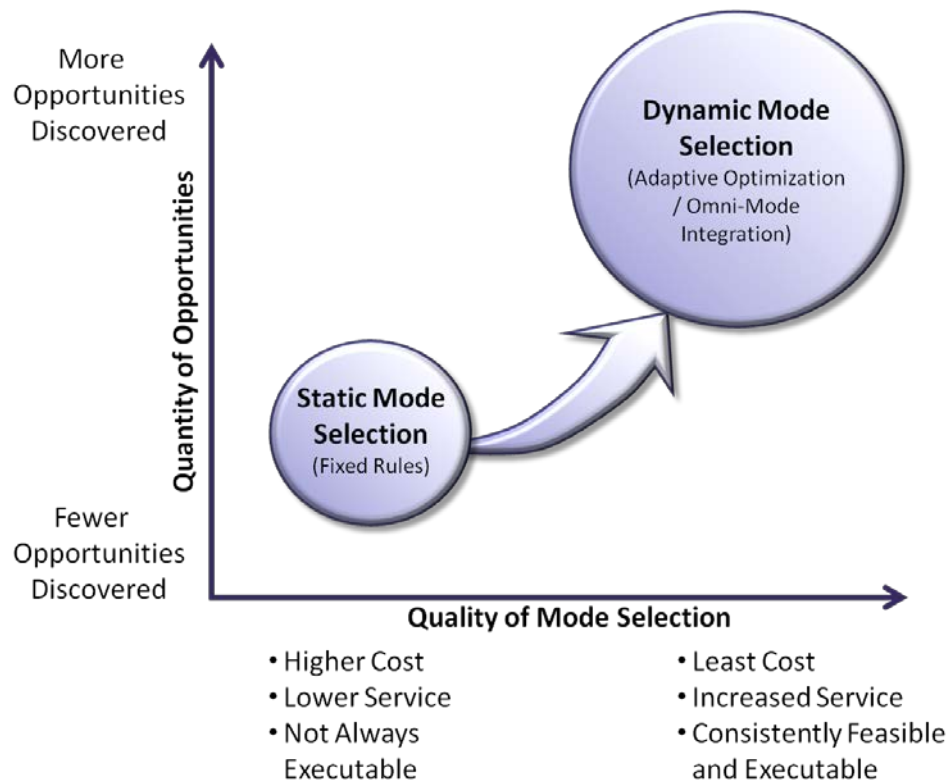


Figure 2 – Dynamic Mode Selection Finds More, Higher Quality Opportunities

⁴ Unless you have a system that does the optimization for you.

Example #1 – Fixed Inbound vs. Outbound

Static Approach: All inbound is done via carriers for hire and all outbound shipments are done on the private fleet. Often the decision to take this approach is done annually and carriers are contracted at that time. This may offset some cost, but it is not responsive to the dynamics of daily activities.

Visibility between the fleet and for hire worlds' shipments uncovers many opportunities to improve performance. A dynamic optimized approach finds those opportunities on an ongoing basis as circumstances continue to change.

Dynamic Approach: Mode selections are based on optimizing for lowest cost, highest fleet utilization, customer service parameters, or other metrics. A carrier may be able to do an outbound load more cheaply, for example if there are backhaul or continuous move opportunities for them. An inbound load might be done more economically by the company's own fleet, especially when they are dropping off a load nearby.

Example #2 – Static Backhaul Selection

Static Approach: The private fleet is not used for inbound backhaul, or is only used where there is a regular recurring outbound shipment that has a nearby regular inbound shipment for pickup on the same schedule. The static approach has difficulty in enabling backhaul for shipments that vary in day/time-of-shipment, duration of shipment, type of equipment, or other factors.

Dynamic Approach: The system identifies opportunities for backhaul that meet economic and other criteria as shipments and routes are planned out and become known. It can continue to seek opportunities and adjust plans as new shipments are added and circumstances change.

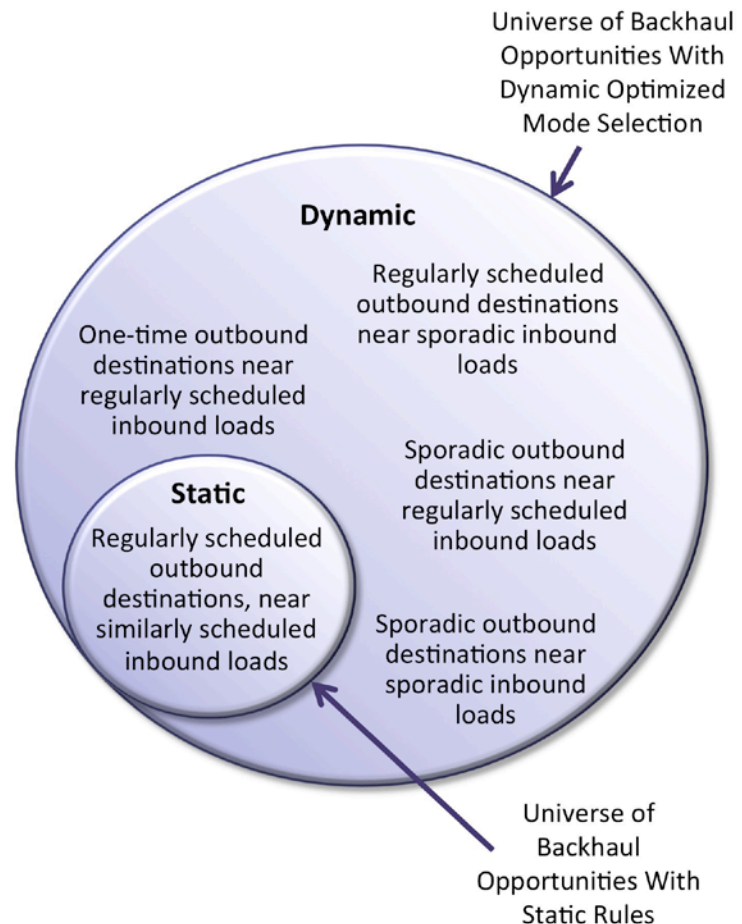


Figure 3 – Dynamic Selection Discovers More Backhaul Opportunities

Example #3—Private Fleet Fixed Geographic Region

Static Approach: A fixed geographic region is defined for fleet shipment. A common approach might be “all shipments within 75 miles of our DC will go on private fleet. Anything further goes by common carrier.”

Under this type of static mode selection, as shown on the left side of

Figure 4 below, stops #1 and #2 are delivered by the private fleet, whereas stop #3 is delivered via a third party, since it is outside the radius for private fleet.

Dynamic Approach: Considers costs dynamically, rather than using a strict geographic distance. In the example below, it turns out to be less expensive to send the private fleet to destinations #2 and #3 (even though #3 is outside the previously defined private fleet service area), and use the carrier for #1 (inside the service area).

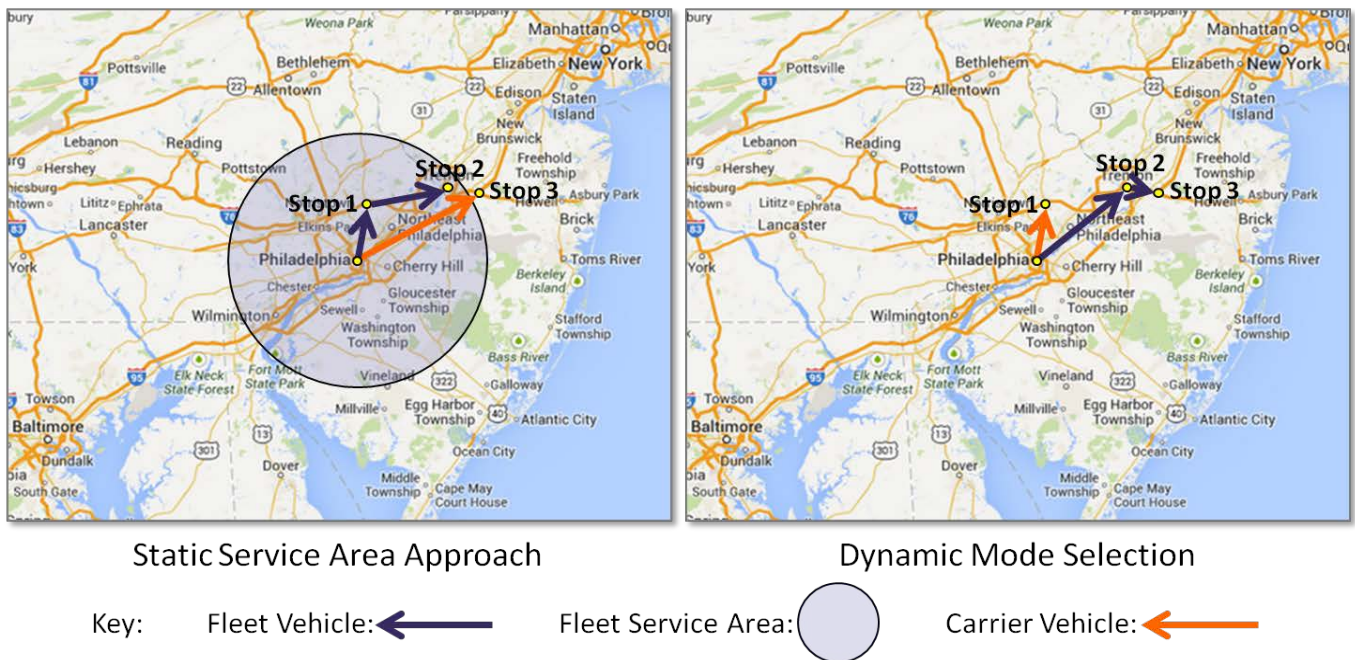


Figure 4 - Static Rule Using Distance as Criteria vs. Dynamic Mode Selection Using Cost

Benefits of a Dynamic Approach

Visibility between the fleet and for hire worlds and between inbound and outbound shipments uncovers many opportunities to improve performance. A dynamic optimized approach finds those opportunities on an ongoing basis as circumstances continue to change. Far more backhaul opportunities are realized.

A dynamic approach saves money, increasing fleet utilization, decreases empty backhaul, and can improve customer service and other performance metrics.

When constraints and the ability to execute are not taken into account, optimization opportunities may be identified, only to find out later they cannot be executed. Closed-loop integration between mode selection, TMS, and route planning / dispatch systems is required to ensure the optimized plans can and are actually executed.

The Importance of Dynamic Execution Integration

To achieve Omni-Mode Integration, it is important that the execution systems for the various modes are integrated with each other and that mode selection decisions take into account constraints and the ability to execute. Identifying opportunities, only to find out they cannot be executed, does not provide value! This requires integrating the TMS systems, parcel systems, and route planning and dispatch systems together in the mode selection decision-making process. These are usually distinct and separate systems. Each system should be able to communicate available capacity and the cost for a given shipment to a common platform that compares all the different options to select the optimal mode that can be actually executed. Once a decision is made, it should be automatically pushed into the appropriate execution system, enabling freight to be placed into the best mode as daily plans evolve.

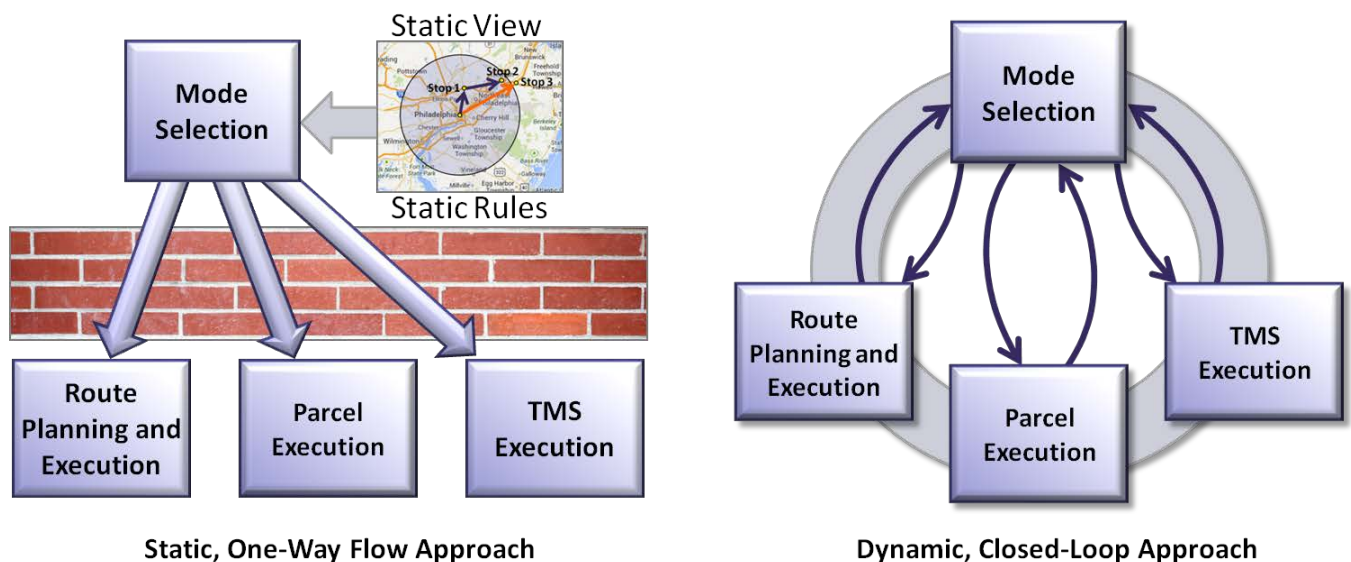


Figure 5 - Mode Selection Should be Dynamically Integrated with Execution Systems

Omni-mode for Different Environments

Different companies have vastly different transportation needs and characteristics regarding frequency and regularity of shipments, time-criticality of shipments, size and nature of products being moved, needs for special equipment or special handling, use of parcel services, multi-modal and international needs, and other dimensions. It is not uncommon for a single firm to have multiple different shipping environments. As such, there are a variety of strategies for achieving omni-mode integration. Below are examples of omni-mode integration addressing different environments and needs.

Time-Critical / Same Day / Next Day

Companies that do a lot of same day or next day shipments will make mode selection decisions in real-time, creating fewer opportunities for consolidating loads. Examples include building materials for construction jobs, blood supplies, and auto parts. These range from primarily parcel (e.g. blood supplies) or courier (e.g. auto parts) to LTL and TL (e.g. building materials). Private fleet may be the preferred mode to ensure timely deliveries. Customer service often takes precedence over cost, which can result in erosion of

profit. Optimizing across modes helps discover opportunities for lowering costs, while maintaining or improving customer service levels and meeting delivery expectations.

Special Capabilities Required

Some companies own a private fleet to fulfill their needs for specialized equipment, such as reefers, tankers, dumps, heavy equipment trailers, flat beds, RGN trailers, on-board crane, or other specialized capabilities, or specialized driver expertise, such as heavy load handling, delicate equipment handling, crane operation, or installation skills. This narrows the choices for third



parties to provide those special capabilities, but often, there are still opportunities for integrating the fleet and for hire transportation. However, the optimization algorithms need to take into account not just time windows and locations, but the capabilities required for each shipment. The higher cost of specialized equipment and expertise can equate to higher savings opportunities by combining fleets.

Small Package



A company that has lots of small package shipments will often use a parcel service. However, if the order is large enough, then they may use an LTL service or their own fleet. In a static world, a company often uses a fixed algorithm based on things like the size, timing, and destination of the shipment. With dynamic integration, the system can discover when packages can be delivered more economically on the company fleet, even if those shipments don't strictly meet the minimum size and/or location rules. This might happen for example when the shipment is near a

planned private fleet route. This requires integration of information from the parcel shipment management system with information from the private fleet management systems.

Inbound/Outbound Integration

When a company has a distribution center and/or manufacturing plant, it is common for their suppliers to be responsible for the inbound freight to the DC or plant and the company's own private fleet for outbound delivery to stores or customers.



However, there may be cases where it makes sense to use the company's private fleet for specific inbound shipments, such as when a company truck is dropping off an outbound load near the supplier's facility where an inbound load is ready. In that case, the cost of using the private fleet may be considerably lower than the supplier's allowance for pickup. There are also opportunities for consolidation and continuous move, as well as combining private fleet with for hire carriers for a single order, each taking its part of the way. The longer the planning horizon and the more flexibility in schedules, the more optimization opportunities that can be realized.

Flexible Solution Required

There are many different scenarios for Omni-Mode Integration, with vastly different requirements. The system should enable optimization across a broad range of other performance goals, beyond cost and utilization. And it should be able to integrate with a variety of transportation planning and execution systems, such as route planning, dispatch, TMS, and parcel management systems, with the ability not only to pull information about current shipments, but also to push execution decisions back into those systems. For this reason, a flexible solution is required that can adapt to special requirements, different modes, a wide range of planning horizons, while integrating with a variety of systems.

Lowering Costs While Improving Service

Once you have a holistic picture and approach, many opportunities are uncovered for lowering costs and raising service levels, often simultaneously. For example, you may be doing weekly deliveries using private fleet to a customer that is off the beaten path. They would prefer twice weekly, but you can't cost justify it with current volumes. You may discover that you can provide bi-weekly delivery at the same or perhaps even lower costs using a carrier. A good system will allow you to optimize not only on cost, but also on other goals and constraints, such as the service frequency, performance, driver skill set, specific equipment, and special services. A holistic approach can also reduce exposure to industry-wide capacity constraints by enabling better utilization of your private fleet.

From Cost to Revenue

Many companies count supplier allowances as a form of revenue, turning empty backhaul into revenue generating loads. By discovering many more of these opportunities, Omni-Mode Integration can help turn transportation from a cost center into a revenue generator.

Increased Flexibility

When all modes are considered together for shipments, it increases the company's flexibility to meet needs, by providing more options and combinations to work with. The boundaries between private fleet, carriers, and parcel are no longer so rigid and fixed. Those resources become more agile and able to meet changing needs economically.

Conclusion—Getting Started

Companies don't have to come up with a whole new strategy for fleet and for hire in order to get started in Omni-Mode Integration. They can just get started with what they have, integrating a portion of their operations, even if it is not the end game. This will start lowering transportation costs and improving services right away. After the initial implementation, they may look back and change their mix and their strategy based on what they have learned. As they realize benefits, it can fund expansion to other parts of the business. The key to maximum benefits is to drive the integration all the way through execution of all the different modes—creating a closed loop model between the selection and execution processes.

The right platform will do most of this work automatically, with no need to increase staff or workload. It can help fully utilize the fleet for the right pickups and deliveries and not just for those that are close and convenient in a pre-specified territory. A good solution helps move a company from static to dynamic, optimized transportation execution decisions, saving money while improving service and competitiveness. Companies looking for their next big boost in transportation performance should take a serious look at implementing Omni-Mode Integration.





About ChainLink Research

ChainLink Research, Inc. is a Supply Chain research organization dedicated to helping executives improve business performance and competitiveness through an understanding of real-world implications, obstacles and results for supply-chain policies, practices, processes, and technologies. The ChainLink 3Pe Model is the basis for our research; a unique, multidimensional framework for managing and improving the links between supply chain partners.

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