THE ALIGNMENT ADVANTAGE:

How to Improve FVL Efficiency and Profitability

Why does this guide exist?

Why did we write it – and more importantly, why should you read it?

The answer is simple.

The finished vehicle supply chain has a significant opportunity to achieve a step change in operational performance and cost reduction. And that opportunity arises through technological advances in real-time location and asset intelligence capabilities.

The Cognosos logistic solution combines state-of-the-art, custom-built vehicle tags with long-range wireless technologies to provide an easy-to-use system that delivers vehicle location data, updated automatically as the vehicle moves from place to place and communicates this location without the need for expensive infrastructure.

By using this system, managers are able to access critical insights into their operations, identify the invisible and wasteful moves that cause delays and lost vehicles, and eliminate the need for manual yard audits.

The end result is delivering on-time, hitting processing targets, and improving personnel safety and productivity.

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SLOW, COSTLY, & INEFFICIENT:

Challenges of the downstream finished vehicle supply chain

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The downstream finished vehicle supply chain can be characterized by a single word: *interdependencies*.

Each link in the chain is trying to drive down its costs and maximize its profits– but can be held back by the actions of adjacent links, both upstream and downstream. Ironically, these actions are often taken by those adjacent links to reduce their own costs and maximize their own profits.

What kind of counterproductive interdependencies are we talking about exactly?

For instance, relocating vehicles multiple times within vehicle processing centers' yards increases the risk of damage, consumes fuel, and increases driver workload. Sometimes those multiple movements are triggered for internal reasons—but often, they're down to decisions by the vehicle manufacturer regarding accessorization, dealer shipments, or individual market customization.

> *Seemingly never-ending supply chain disruptions caused by port bottlenecks, trade tensions, and other restrictions, result in the shortage of essential components for automakers. This leads to cars waiting in yards for components, adding to the existing space constraints.*

To cite another example, vehicle processing centers operate most efficiently when driver workloads are relatively consistent throughout the day. But in reality, these operations often experience peaks and troughs in workload caused by vehicle carriers arriving to pick up their loads during the early part of the day. Seasonal peaks also add to the pressure as they swamp yards with significantly higher workloads at certain times of the year.

> *Detention charges typically accrue on a per-hour or per-day basis, with rates varying from carrier to carrier. Charges can range from $25 to $200 per hour.*

The result? Long wait times can lead to multiple vehicles being moved at one time, causing damage. Drivers are put under pressure to quickly locate and load scheduled vehicles – or declare them lost and move on to the next pickup. This can result in detention charges, which are fees charged when the vehicle processor exceeds defined contractual limits for transporter wait times. Similarly, when a vehicle processing center includes a railhead, yard congestion and delays due to misplaced vehicles can also result in penalty fees.

Drivers within vehicle processing centers search for vehicles in all seasons, and are tasked with quickly locating their assigned vehicles and delivering them to the loading point. They're driving in snow, rain, sleet, or scorching summer heat, under pressure to avoid causing damage, and yet they must also navigate the lot as quickly as possible – all of this for a paycheck that's not much higher than the minimum wage. Not surprisingly, employee turnover is high—and consequently, the recruitment and training costs for replacement drivers are high too.

Likewise, vehicle carriers operate most efficiently with full loads, and with minimal queuing time at vehicle processing centers, as they wait to be loaded. Yet the reality is very different, as vehicle transporters often place more emphasis on delivering shipments on time than they do on delivering those shipments in full. The result? When vehicles scheduled for collection can't be located, vehicle transporters drive away with short-shipped loads. What's more, with long truck wait times being endemic, truckers routinely run the risk of being fined by local cities and municipalities if their queues spill over onto public roads.

And what of the automotive OEM that constitutes the first link in the finished vehicle supply chain? And the auto dealership, that makes up the last link in the chain? They suffer, too, even though all these events are outside their immediate control.

> *Every time a vehicle is moved, it carries the risk of damage, whether from collisions or dents and scratches caused by jostling, bumping, or scraping during loading and unloading.*

The dealership takes the associated performance hit. Worst case, when vehicles don't arrive at the dealership as scheduled, there may be a disappointed end customer, who's ordered a vehicle that hasn't been delivered. The consumer can't drive away in their shiny new vehicle, and the dealership can't book and bank the associated revenue. Even when a vehicle hasn't been pre-sold, a vehicle that's delivered late represents dealership inventory that can't sit on the lot and be sold.

For the OEM, the hit is financial. Bloated inventories, for one thing. When vehicles can't be located in the vehicle processing center, it can be weeks before the next yard audit pinpoints its position. When dealerships don't receive the vehicles that they expect, the OEM must pay a fee by way of compensation—as well as expedited

shipping fees when sending a replacement vehicle.

Then there are the costs of 'lot rot' to contend with, too: scratches, degradation to rubber and plastic components, dead batteries, and deflated tires when vehicles are parked for weeks or months in a vehicle processing center's yard or overspill compound: paint repair and tire replacement is commonplace. And all that damage caused by vehicle movements? Insurers pick up the tab— but high incidences of vehicle damage are reflected in correspondingly high insurance premiums.

"Lot rot" refers to the damage or deterioration of vehicles that have been sitting in a yard an extended period of time. Lot rot can result in additional costs to repair or replace damaged parts.

02

The impact of highly- accurate vehicle visibility

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What's common to all these costs and inefficiencies?

One simple thing: a lack of visibility into vehicle location, within vehicle processing centers.

Simply put, if vehicles could be located more quickly, and more accurately, then all these costs and inefficiencies would go down.

Driver workloads would reduce, with drivers pointed to exactly where their intended vehicles are located. Far fewer vehicles would be reported as misplaced, or lost. Transporter loading would be quicker, short-shipments to dealerships would reduce, and OEM vehicle manufacturers would pay fewer short- shipment penalties to dealerships.

With quicker transporter loading, transporter lines would shorten, and so detention fees paid by vehicle processing centers would as well, and fewer fines would be paid by transporter companies for lining up on public roads.

The list of benefits goes on.

'Lot rot' would reduce. OEMs' inventories would fall. Damage would reduce, and insurance premiums would go down. End consumers can get the vehicles they want when they want them; dealerships would have all their vehicles; and vehicle processing center drivers would be directed to the exact location of each vehicle every time. With an end to hunting for lost vehicles in pouring rain or extremes of heat or cold, employee turnover would reduce. This, in turn, would decrease recruitment and training costs while improving the overall experience of employees, making them more efficient.

In short, across the entire downstream finished vehicle supply chain, costs would fall, and performance metrics would improve. That's the promise of visibility.

But the question is: *how do you achieve it?*

03

The solution that delivers real-time visibility

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A dramatic improvement of visibility into vehicle location isn't an idle fantasy.

The technology exists right now—and is in use at **over half of the top OEM's manufacturing in America**. It's robust, it's reliable, and it's revolutionizing operations

Cognosos' location intelligence is powered by wireless, low-cost, GPS-enabled hardware tags, which are activated by onboard accelerometers— meaning that any time a vehicle is moved in the yard, its new location is immediately captured. The location is then broadcast over Cognosos' patented long-range wireless network, offering a range of up to two miles outdoors.

> *"There is a measurable improvement in inefficiency because I'm receiving real-time location updates for 100% of my inventory, 24 hours per day, 365 days a year."*
>
> *– Robert Carmichael, Hyundai Glovis VPC General Manager.*

GPS technology pins down a vehicle's location to within two or three parking spaces. In daylight, and with good visibility, that may be sufficient to cut the search time to effectively zero. At night, in snow or heavy rain, correctly locating a red sedan—and the right red sedan—may take a little longer. But press a button on your mobile phone, and the rearview mirror-mounted tag on the exact vehicle in question will brightly illuminate and flash. Forget a search time of 'effectively' zero: the search time is zero.

The contrast with earlier and more primitive location technologies couldn't be starker. Barcodes, for instance, can become obscured, damaged by inclement weather, or subject to missed scans. RFID-based solutions can also be prone to missed scans and read-errors—as well as requiring expensive infrastructure, such as read-gates located throughout the vehicle processing center and at specific processing points.

Cognosos' system also includes a cloud-based application platform to transform tracking data into actionable intelligence. How many times are vehicles moved? Which vehicles have been in the yard the longest? Which drivers move the most vehicles? Which drivers move the least? Which drivers incur the most vehicle damage? How quickly do drivers move from one task to the next?

Managers in vehicle processing centers have long wanted to know the answers to such questions—and now they can. Quickly, easily, accurately—and at the touch of a button.

04

A shared vision ensures a shared gain

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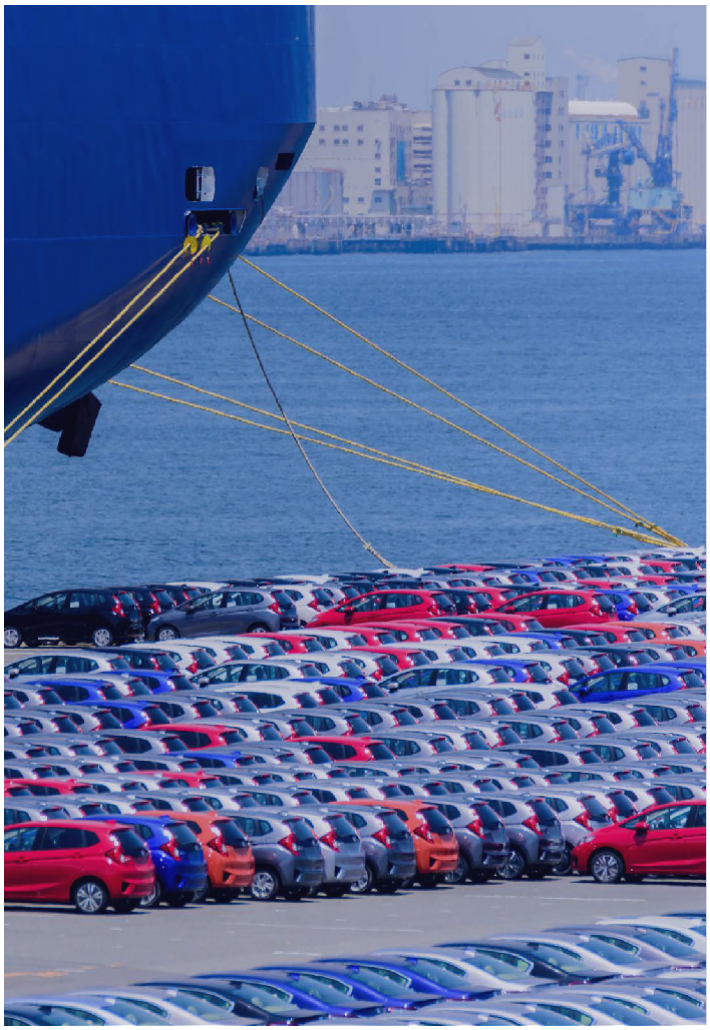
Across multiple dimensions, location intelligence is transformative.

A vehicle processing center with location intelligence at its core achieves levels of performance that other vehicle processing centers can only dream of. They're lean, efficient, and with industry-leading cost and productivity profile—they're way ahead of their peers.



But here's the thing: that transformative impact is also felt within other links in the downstream finished vehicle supply chain. Every stakeholder in the supply chain benefits. OEMs benefit. Vehicle transporter companies benefit. Dealerships benefit. Rail transportation companies benefit. Insurance companies benefit. And ultimately, new car buyers benefit too.

With shared gains, there is a strong argument for shared costs as a means of accelerating those gains through the adoption of an investment in an advanced RTLS. But how to calculate those gains?

05

Calculating hard-dollar returns for stakeholders

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Measuring tangible ROI.

No two finished vehicle supply chains are the same. No two vehicle processing centers are the same. And no two vehicle transportation companies operate in exactly the same way. Different stakeholders might have opinions — perfectly valid opinions — but what's called for are facts that can be supported and documented with evidence.

Enter the ROI calculator.

Across 16 costs or inefficiencies, stakeholders can enter the relevant parameters drawing on their own cost structures and operational knowledge, in order to generate resulting savings expressed in hard, dollar terms.

Source of ROI	How does it arise?	OEM vehicle manufacturer	Vehicle processing center	Transporter company / carrier
Reduced average dwell time	With fewer misplaced and short-shipped vehicles, coupled to leaner and more efficient processing, average in-yard dwell time falls.	✓	✓	
Fewer vehicle movements	When yards get congested, 3PLs shuffle cars around to make storage more efficient. Reduced congestion leads to fewer moves.	✓	✓	
Faster truck turnaround time	Cognosos helps drivers find vehicles faster, and load them on trucks sooner—and get away sooner.		✓	✓
Reduced inventory financing costs	With a lower average dwell time, there's less inventory—and so less inventory to finance.	✓		
Increased driver productivity	With less time spent looking for vehicles, drivers spend more time driving. Dwell time reduces, and in-car driving behavior improves.	✓	✓	✓
Reduced vehicle damage	Under less pressure to move vehicles quickly-and in yards that are less congested—there are fewer collisions.	✓	✓	
Reduction in misplaced vehicles	Using Cognosos means that vehicles simply don't get misplaced.	✓	✓	
Improved staff retention	Spending less time under pressure to locate hard-to-find-vehicles in inclement weather conditions, drivers are less inclined to quit.		✓	
Reduced truck congestion & wait times	When drivers don't have to hunt for vehicles, trucks are loaded more quickly, and leave the site sooner.		✓	✓
Reduced detention fees	And when trucks aren't queueing up waiting to get loaded, wait times plummet, and detention fees aren't charged.		✓	✓
Reduced train loading time	Trains are loaded more quickly too, when the yards in question are located at railheads.		✓	✓
Reduced fuel consumption	Fewer in-yard movements to create blocks of free space brings reduced fuel consumption-plus non-monetary green plaudits.	✓	✓	
Reduced insurance premiums	Less in-yard damage? Tell your insurer: that could yield lower insurance premiums.	✓	✓	
Reduced 'lot rot' from extended stays	When cars are stored for extended periods, tires deflate, batteries die, plastic degrades, and paint fades. A faster dwell time means lower 'lot rot.'	✓	✓	
Faster and more efficient yard campaigns	When you have immediate visibility to every vehicle, locating specific ones improves yard campaign efficiencies.	✓		✓
Reduction in unnecessary vehicle moves	Real-time visibility reduces the movement of the wrong vehicles accidentally, or without reason.	✓		✓
Fewer, faster and more efficient inventory audits	With Cognosos, yards need fewer inventory audits, they're faster, and they need fewer people to complete.		✓	
Reduction in expedited shipments through 'short ships'	Fewer 'short ships?' That's fewer costly expedited shipments, in order to get vehicles to disappointed customers.	✓	✓	

Cognosos' real-time ROI calculation tool explores the hard dollar benefits indicated by these check marks, plugging in your cost structures, your vehicle volume levels, and your staffing structure.

For a demonstration and a personalized ROI calculation, contact us today.

ABOUT COGNOSOS, INC. Cognosos equips enterprises with the real-time asset intelligence needed to unlock insights and drive decision-making. Its lightweight platform deploys quickly and offers hospitals room-level accuracy with minimal disruption of operations.

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