WHITE PAPER

The Agentic Carrier

What Limits Small Carrier Success and How to Fix It

An industry analysis of the structural barriers facing motor carriers operating one to five power units, and a framework for evaluating the tools that address them

Ken Korbel
Founder, XBASE1
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Disclosure: The author is the founder of XBASE1, which develops the Agentic Carrier Engine (ACE) discussed in Section 6. Industry data in Sections 2 through 5 are drawn from the third-party sources listed in the References.

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Executive Summary

The American trucking industry is, by count, an industry of small businesses. According to the American Trucking Associations, 91.5% of all U.S. motor carriers operate ten or fewer trucks, 97% of for-hire carriers operate ten or fewer, and 70% of for-hire companies run a single truck [1]. These operators pay the same rising costs as the largest fleets: the industry-average cost to operate a truck reached a record $2.336 per mile in 2025, while truckload and refrigerated operating margins stayed below 1% [2].

This paper examines why carriers with one to five power units, of any equipment type, struggle to convert capacity into profitable revenue, and what can be done about it. The analysis draws on published data from federal regulators, industry research institutes, trade associations and market analysts, supplemented by the author's direct experience operating a small motor carrier.

The evidence points to seven constraints. Two are market conditions no single carrier controls: margin compression and dependency on brokered spot freight. Five are operational, and they share a common cause: **the small carrier competes for perishable freight with less staffed attention than its competitors.** The best-paying spot loads are covered within minutes [11]. Larger operations assign dispatch staff to respond continuously; the owner of a one-truck carrier is usually also the driver, and federal rules prohibit handling a phone while driving [9]. To close the gap, many small carriers hire third-party dispatch services at 5% to 10% of gross revenue [7], on top of factoring fees of 1% to 5% [8] — a cost stack that can reach ten times the industry's average operating margin.

The paper sets out an eight-criterion framework for evaluating solutions and applies it to six categories: self-dispatch on load boards, third-party dispatch services, instant-book freight platforms, desktop load-board overlays, transportation management systems, and agentic carrier engines. No category scores well on every criterion. The analysis concludes that the constraint most specific to small carriers, the labor asymmetry in the bid window, is best addressed by tools that execute the repetitive bid-cycle work on the carrier's behalf while leaving every commitment to the carrier. The paper calls an operator working this way an **agentic carrier**.

1. Scope and Method

1.1 Segment definition

This paper defines a small carrier as a for-hire motor carrier operating one to five power units, regardless of equipment type: tractors, straight trucks, box trucks, cargo vans and hotshot units. In this segment the owner typically drives, dispatches, invoices and develops customers personally, or with one or two other people.

1.2 Sources and method

The analysis synthesizes published data from the Federal Motor Carrier Safety Administration (FMCSA), the American Transportation Research Institute (ATRI), the American Trucking Associations (ATA), FTR Transportation Intelligence, the OOIDA Foundation, the Transportation Intermediaries Association (TIA), Verisk CargoNet, Oliver Wyman, and freight-industry trade

publications. Where a figure comes from a commercial vendor rather than a research body, it is identified as such in the References.

Most published fleet-size data uses a ten-truck boundary rather than five. Where a statistic covers carriers with ten or fewer trucks, it is reported as published and not rescaled. Observations drawn from the author's own operating experience are labeled as field observations and are not presented as statistically representative.

2. The Small Carrier Landscape

Approximately 580,000 motor carriers were active and registered with FMCSA as of mid-2025 [1]. The for-hire population expanded sharply during the 2020 to 2022 freight boom; as of November 2025 it remained roughly 89,000 carriers, or 34.5%, above its February 2020 level [4]. The correction since then has been carried mostly by the smallest operators. FTR reports that most carriers entering and exiting the market operate only one or two power units [5]. Net revocations of operating authority averaged just under 5,000 per month in 2025 and reached 6,427 in December, the highest monthly total since April 2024 [3].

Table 1. Key indicators for the small carrier segment

Indicator	Value	Source
Carriers operating 10 or fewer trucks (all carriers)	91.5%	ATA [1]
For-hire carriers operating 10 or fewer trucks	97%	ATA [1]
For-hire companies operating a single truck	70%	ATA [1]
Average operating cost per mile, 2025	$2.336 (record high, +3.4%)	ATRI [2]
Truckload and refrigerated operating margin, 2025	Below 1%	ATRI [2]
Average monthly net authority revocations, 2025	Just under 5,000	FTR [3]
For-hire carrier base vs. February 2020	+34.5% (about 89,000 carriers)	FTR [4]
Owner-operators booking via shipper contract	30%	OOIDA [6]
Cargo theft and fraud losses, 2025	$725 million (+60% vs. 2024)	CargoNet [12]

Fleet-size figures use the ten-truck boundary reported by ATA; see Section 1.2.

One finding cuts against a common assumption. In ATRI's 2023 operating data, truckload carriers with fewer than five trucks reported the lowest deadhead share of any fleet-size group, at 10% [16]. Small carriers are not, as a class, inefficient operators of their equipment. The constraints examined below sit upstream of the truck: in how freight is found, competed for and paid for.

3. Seven Constraints on Small Carrier Success

3.1 Margin compression outside the carrier's control

Every major cost line ATRI tracks rose in 2025. Tolls rose 13.2%, repair and maintenance 8.6%, driver benefits 6.6% and tires 6.4%; non-fuel costs alone reached $1.854 per mile [2]. Only less-than-truckload carriers and fleets with more than 1,000 trucks posted what ATRI characterized as healthy margins, and flatbed carriers averaged an operating loss of 0.5% [2]. Small fleets responded by spending less on trucks and trailers than in 2024, while truckload fleets with more than 1,000 trucks increased equipment spending by 16.1% [2]. A small carrier

cannot negotiate fuel, insurance or parts pricing at scale. Its controllable levers are revenue per load, loaded miles, and the share of gross it pays to intermediaries.

3.2 Dependency on brokered spot freight

Small carriers rarely hold direct shipper contracts. In the OOIDA Foundation's freight rate survey, only 30% of owner-operator respondents booked loads through a contract with a shipper or receiver; 36% used freight brokers and 43% used load boards [6]. The survey noted that carriers entering during the boom years largely lacked access to contracted freight [6]. The spot market is the most transactional and most volatile channel in trucking, and it is the one where the small carrier competes against every other carrier with the same equipment in the same area. With the for-hire population still well above its pre-2020 level [4], that competition remains crowded.

3.3 The bid window and labor asymmetry

Spot loads are perishable. Industry sources consistently report that the highest-paying loads on public boards are gone within a few minutes of posting [11]. On the broker side, covering a load by phone takes an average of seven calls of about two minutes each to find a qualified carrier [10]. Taken together, these figures describe a bid window measured in minutes, in which the carriers who respond first are the carriers the broker is talking to when the load is covered.

Larger operations staff that window. Fleets and dispatch organizations assign multiple people to respond to postings throughout the day. The author's field observation illustrates the effect: a single-truck carrier that ranked as a top performer on a large brokerage's carrier portal stopped winning loads after carrier groups placed in-house dispatch teams, of roughly five people each, on that portal to bid continuously. The small carrier's rates and service had not changed. It was consistently later to respond. This is the defining constraint of the segment: **the outcome is decided by staffed attention, not by rate or service quality.** It is a labor asymmetry, and it cannot be solved by working harder, because the small carrier's available hours are already committed to driving.

3.4 The driver is the dispatcher

In a one-to-five-truck operation, the person best positioned to accept a load is usually behind the wheel. Federal rules restrict that person's ability to respond. FMCSA prohibits commercial drivers from holding a mobile phone to make a call or dialing by pressing more than a single button while driving, with civil penalties of up to $2,750 per offense for drivers and up to $11,000 for carriers that allow or require the practice; FMCSA-commissioned research found that dialing while driving raises the odds of a safety-critical event sixfold [9]. Hours-of-service rules cap driving at 11 hours within a 14-hour on-duty window [17], and the remaining hours are consumed by loading, fueling, paperwork and rest. The practical result is that a driver-owner is unavailable to the bid window for most of the business day, during exactly the hours when brokers are posting.

3.5 The intermediary cost stack

Small carriers commonly buy back the attention they lack. Third-party dispatch services typically charge 5% to 10% of each load's gross revenue [7]. Because brokers commonly pay on 30-to-45-day terms, and sometimes longer, many small carriers also factor their receivables, at

fees between 1% and 5% of invoice value, with most small carriers paying 2% to 3.5% [8]. Both costs scale with revenue: the better the carrier performs, the more it pays.

Table 2 applies these published ranges to an illustrative single truck grossing $4,000 per week, based on typical small-carrier revenue.

Table 2. Illustrative intermediary cost stack, one truck at $4,000 gross per week

Cost component	Per week	Per year (52 weeks)
Gross revenue	$4,000	$208,000
Dispatch service at 8% to 10% of gross	$320 to $400	$16,640 to $20,800
Factoring at 2% to 3.5% of invoice	$80 to $140	$4,160 to $7,280
Combined intermediary cost	**$400 to $540**	**$20,800 to $28,080**
Combined, as a share of gross	10% to 13.5%	10% to 13.5%
Reference: 1% operating margin on the same gross	$40	$2,080

ATRI margins are measured for fleets that pay drivers as an expense. For an owner-operator, the owner's own pay sits inside operating cost, so the comparison is directional rather than exact. It shows the scale of the intermediary stack relative to what the industry retains as margin.

The dispatcher's percentage is the largest single controllable cost in this stack. It buys attention, broker relationships and negotiation; Section 5 evaluates whether those functions can be obtained differently.

3.6 The broker relationship deficit in a fraud-heavy market

Brokers prefer carriers they know, and the fraud environment has strengthened that preference. Verisk CargoNet estimates cargo theft and fraud losses in the U.S. and Canada at $725 million in 2025, up 60% from $455 million in 2024 [12]. TIA links roughly a third of reported fraud cases to double brokering or other unlawful brokerage [14], and a major load board operator's 2024 fraud report found that identity theft and fake-carrier schemes increasingly target small fleets [13]. For a legitimate small carrier, the consequence is more vetting friction with brokers who have not worked with it before.

Building a broker base requires consistent, repeated contact: introducing the carrier's equipment and lanes, following up, and staying visible to the brokers who have paid well and paid on time. The number of counterparties is large; active brokerages grew 79% from December 2016 to December 2022 and remain 44% above their 2016 level [15]. A driver-owner rarely has the hours to develop that base systematically, which is one reason the relationship often ends up held by a dispatcher rather than by the carrier.

3.7 Ecosystem fragmentation

Spot freight reaches a small carrier through many separate channels: public load boards, individual brokerage portals, load-offer emails and direct broker contact. Each has its own login, interface and session rules, and some require repeated re-authentication. A desk-based dispatch team can keep several of these open at once. A single operator cannot. In the author's assessment, the largest brokerages have each built well-engineered but closed ecosystems around their own freight, which require the carrier to come to them, one platform at a time. The result is that the small carrier's limited attention is divided across platforms, and much of the available freight goes unseen.

4. An Evaluation Framework

Each constraint in Section 3 implies a test that any proposed solution should pass. Constraints 3.1 and 3.2 are market conditions; no tool removes them, but a tool can reduce the share of revenue lost to intermediaries and improve the carrier's competitiveness within the spot channel. Table 3 sets out the resulting criteria. Criterion E8 is not derived from a constraint but is included because small carriers also need it, and its absence is a legitimate limitation of some approaches.

Table 3. Evaluation criteria

ID	Criterion	Test	Constraint
E1	Response latency	How quickly does a matching load reach the decision-maker, and how quickly can a bid follow?	3.3
E2	Field compatibility	Can a carrier away from a desk act on it without violating hands-free rules?	3.4
E3	Cost structure	Is the cost fixed, or does it scale as a percentage of gross?	3.1, 3.5
E4	Source breadth	Does it work across boards, brokers and load-offer channels, or inside one ecosystem?	3.2, 3.7
E5	Relationship ownership	Do broker relationships accrue to the carrier, under the carrier's identity?	3.6
E6	Decision authority	Does the carrier keep the accept, price and commit decision?	All
E7	Additive adoption	Can it be used alongside the carrier's current tools without replacing them?	3.7
E8	Back-office and negotiation	Does it handle invoicing, documents and rate negotiation?	Supplementary

5. Solution Categories Compared

Six categories of solution are available to small carriers today. They are evaluated here as categories; individual products within a category vary. Ratings reflect the typical design of each category against the criteria in Table 3.

Table 4. Category evaluation (S = strong, P = partial, L = limited)

Criterion	Self-dispatch on boards	Dispatch service	Instant-book platform	Desktop overlay	TMS	Agentic engine
E1 Response latency	L	P	S	S	L	S
E2 Field compatibility	L	S	P	L	L	P
E3 Cost structure	S	L	S	S	P	S
E4 Source breadth	P	S	L	P	L	P
E5 Relationship ownership	S	P	P	P	S	S
E6 Decision authority	S	P	S	S	S	S
E7 Additive adoption	S	S	S	S	L	S
E8 Back-office and negotiation	L	S	P	L	S	L

5.1 Self-dispatch on load boards

A fixed subscription gives the carrier access to large volumes of freight and keeps every relationship and decision with the carrier. Its weakness is the subject of Sections 3.3 and 3.4: it depends entirely on the owner's available attention, which is lowest during driving hours.

5.2 Third-party dispatch services

A dispatch service is the only category that scores strongly on field compatibility, and it shares the top score on negotiation and back-office support with the TMS, because a human does the work while the driver drives. It also reaches across many sources. Its costs are the highest in the comparison and scale with gross [7]; its attention is shared across all the carriers it represents; and broker relationships are often held by the dispatcher rather than the carrier. For carriers that value negotiation and back-office support over margin, it remains a rational choice.

5.3 Instant-book freight platforms

Instant-book platforms remove negotiation friction and give the carrier certainty at the moment of booking. They are fast and usually inexpensive to the carrier. Their reach is limited to the freight posted on that platform, and the relationship is mediated by the platform rather than held directly between carrier and broker.

5.4 Desktop load-board overlays

Browser overlays and extensions accelerate response for a user sitting at a board, often by preparing a bid message from the load posting. They are fast and inexpensive, but they assume a desk-based user and typically work within a single board. Many are designed for dispatchers rather than carriers. Speed to contact fills an inbox; speed to commitment fills a truck. A tool that accelerates the first contact without putting a commit-ready decision in front of the carrier addresses only part of the bid window.

5.5 Transportation management systems

A TMS is the strongest category for back-office work: dispatch records, documents, invoicing and settlement. It is built to manage freight the carrier has already won, not to compete for spot freight in the bid window, and adopting one is usually a replacement decision rather than an addition.

5.6 Agentic carrier engines

An agentic carrier engine executes the repetitive parts of the bid cycle on the carrier's behalf and delivers commit-ready decisions to the carrier across several delivery surfaces. It scores strongly on latency, cost structure, relationship ownership and decision authority, and it is designed to run alongside existing tools. Its limitations are real: source breadth depends on the channels and partner integrations the carrier connects; field use still requires the driver to be stopped, on a compliant hands-free setup, or supported by a second authorized user; and it does not negotiate or handle back-office work. Section 6 describes the model in more detail.

6. The Agentic Carrier Model

6.1 Definition

An **agentic carrier** is a small carrier whose repetitive bid-cycle work is executed by software on its behalf: identifying loads that match its equipment, lanes and rate requirements; delivering

them to whoever is authorized to decide; preparing the response; and maintaining contact with its broker base. Every commitment, including whether to bid and at what rate, remains the carrier's decision. The model does not replace the carrier's judgment. It replaces the staffed attention that larger competitors buy with headcount.

6.2 How the model maps to the constraints

- **Bid window (3.3).** Delivery happens in seconds rather than when the owner next has time to look, so the carrier enters the window at the same time as a staffed desk.
- **Driver availability (3.4).** Decisions reach the carrier on whichever surface is available, and a second authorized user can act when the driver cannot. The model does not make it lawful to handle a phone while driving, and should not be represented as doing so.
- **Cost stack (3.5).** A fixed subscription replaces a percentage of gross for the attention function, leaving negotiation and back office to be handled by the carrier or purchased separately.
- **Relationship deficit (3.6).** Broker development runs consistently under the carrier's own identity, so the relationship and its history belong to the carrier.
- **Fragmentation (3.7).** A board- and broker-agnostic design brings matching loads from multiple channels into one decision flow.

6.3 XBASE1's implementation

XBASE1 developed the Agentic Carrier Engine (ACE) as an implementation of this model. A.C.E. is a load automation and bid delivery tool that dramatically enhances the power and speed in the bid process. ACE reacts to matching loads and automates delivery to the carrier, alerting carriers across multiple delivery surfaces and letting them bid instantaneously. A.C.E. uses proprietary methods to qualify loads against the carrier's own settings, and the engine is predominantly deterministic, with artificial intelligence applied only where it improves the result. The carrier makes the decision; the engine does not commit on the carrier's behalf.

ACE also automates broker development to the carrier's own broker base, and XBASE1 has designed it to be board- and broker-agnostic and additive to what the carrier already runs. It is not a transportation management system, a load board or a brokerage.

XBASE1 positions ACE on revenue rather than efficiency. Most carrier software justifies itself by time saved managing freight already won; ACE is aimed at winning loads the carrier would otherwise lose in the bid window. The company's line for this is: "Efficiency saves you time. ACE makes you money."

6.4 Measured performance

XBASE1 measures two speeds separately. **Alert speed** is a platform metric: alerts reach the carrier in under three seconds. **Speed to Bid** is an individual carrier performance metric, measured from the moment the alert reaches the carrier to the moment the carrier's bid is sent; it reflects how quickly that carrier chooses to act and is not a platform guarantee. On that measure, carriers using ACE average thirty-five seconds to get a bid to the broker. Against a bid window measured in minutes [10][11], these figures place the carrier inside the window rather than after it.

7. Field Profile: A Founder-Operated Box-Truck Carrier

The following profile is drawn from the author's own operation. It is presented as an illustration of the constraints in Section 3, not as statistical evidence.

The carrier is a box-truck operation under its own authority, sourcing freight primarily from brokers and broker portals. For a period it was among the top carriers on a large brokerage's carrier portal. As the portal grew in popularity, carrier groups placed in-house dispatchers on it who bid on nearly every load to keep their trucks moving, without regard to rate. The small carrier, which needed a workable rate to run profitably, stopped winning. Its price and service had not changed; it was consistently late to bid against teams of roughly five people staring at a screen all day. The constraint was labor, as described in Section 3.3.

The carrier had also paid a third-party dispatcher at a rate consistent with the ranges modeled in Table 2. After adopting an agentic approach on a non-ecosystem load source, the owner eliminated the paid dispatcher. Based on the owner's experience, the operation now wins loads daily with less stress and stronger margins than under the dispatch arrangement.

8. Limitations and Open Questions

- **Fleet-size boundaries.** Most public data uses a ten-truck boundary. The one-to-five-truck segment is a subset whose specific characteristics are inferred, not directly measured.
- **Survey samples.** The OOIDA figures come from member respondents, who may not represent all small carriers. Dispatch and factoring ranges are drawn from published market pricing rather than audited transaction data.
- **Response time and win rate.** This paper infers the importance of response speed from published observations of how quickly loads are covered. No public controlled study has measured win rate as a function of carrier response time. That study would be valuable, and XBASE1 would support it.
- **Supply dependency.** Any agentic engine can only deliver the freight available through the channels it is connected to. Source breadth will determine its value for many carriers.

9. Conclusion

The small carrier's problem is not that it runs its trucks poorly. Its deadhead performance is the best in the industry [16]. Its problem is that it competes for perishable spot freight with one person's attention, against operations that staff the bid window with teams, under rules that keep that one person off the phone for most of the working day. The conventional remedy, a dispatch service paid as a share of gross, buys attention at a price that can exceed the industry's entire margin many times over.

Small carriers evaluating tools should start with the criteria in Table 3, and in particular ask three questions: Does it put me in the bid window while I am driving my truck? Does its cost stay fixed as my revenue grows? Do the broker relationships it builds belong to me? The agentic carrier model is one answer to those questions. It does not remove the market conditions of Sections 3.1 and 3.2, and it does not replace negotiation or back-office work. It does remove the labor asymmetry that, in the author's experience and in the evidence reviewed here, decides who wins the load.

About the Author

Ken Korbel is the founder of XBASE1. He brings firsthand experience as a small carrier owner, and his background spans enterprise technology solutions, public-sector finance leadership in CFO-level roles, and payments industry management.

The author is available for inquiries at info@xbase1.com.

About XBASE1

XBASE1, an XTX company, focused on motor-carrier-specific software solutions, has designed a novel Agentic Carrier Engine (ACE) that drives dramatic increases in load visibility, speed-to-bid, and broker-pipeline automation — at incredible platform value-to-cost ratio.

Website: xbase1.com · Partnership and integration inquiries: partners@xbase1.com

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