



DIGITAL FREIGHT MATCHING

Capturing Technology-Based Efficiencies in the Trucking Industry

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Emergence of Digital Freight Matching

Digital Freight Matching companies aim to match Shipper demand (the need to transport a product) with Carrier supply (truck capacity) via digital (web- or mobile-based) platforms, usually in the form of apps. In the past five years, several Digital Freight Matching (“DFM”) companies have emerged. The sector has attracted over \$180 million in Venture Capital investment since 2011. Armstrong & Associates (A&A) recognizes the potential of new technology to efficiently match freight. We therefore undertook a study of twenty-seven DFM companies to provide an overview of current product offerings. We also assessed current market conditions, industry challenges, and potential uses for DFM technology.

Digital Freight Matching is possible due to the development of a larger phenomenon: the genesis of the Sharing Economy and the concurrent rise of Digital Matching firms in other industries. The Sharing Economy goes by many names — the on demand economy, the access economy, and the collaborative economy, to name a few. The principle has existed for eons: sharing assets or labor to squeeze maximum efficiency from a single unit. However, digital platforms vastly increase the scale and speed in which demand can be matched with supply. As a result, companies operating within this space, such as Uber and Airbnb, have expanded from small startups to multi-billion dollar companies in less than a decade. Uber, the clear leader, was most recently valued at \$62.5 billion and has attracted venture capital investment of \$12.5 billion.

Following the success of these vanguards in the ride-hailing and hospitality industries, the startup arena has been flooded with companies aiming to use Digital Matching to revolutionize other industries. Meanwhile, Uber became a byword for any sort of Digital Matching within the Sharing Economy — hence the now-common term “Uber for X,” and now, of course “Uber for Trucking.” At face value, it certainly seems Uber can be applied to trucking. Uber pairs a similar problem (underutilized capacity in taxis) with a similar solution (a mobile-based app which matches passenger demand with taxi-driver supply). However, many of those engaged in Digital Freight Matching companies are loath to be characterized this way. Furthermore, a number of important distinctions separate the Uber problem and solution from those of Digital Freight Matching companies. After studying many of the solutions on the market, A&A found that most DFM companies aren’t simply mimicking the Uber model, and we agree the term distorts the true functionality DFMs offer and conflates the “freight problem” with the “Uber problem.” We do use Uber functionality as a reference point frequently throughout the paper, but generally maintain the opinion that Digital Freight Matching is a more apt moniker than Uber for

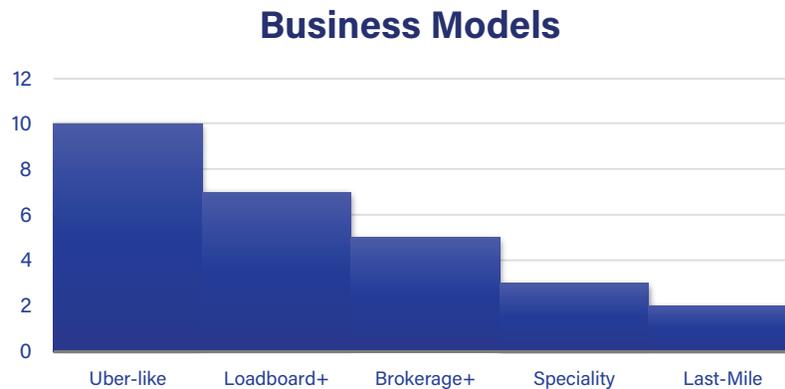
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Summary of App Characteristics

A&A studied 27 applications aiming to increase trucking efficiency; decrease empty miles; speed communication between carriers, shippers, and third parties; automate aspects of arranging transport; and automate aspects of the trucker workload. Common characteristics of these apps are summarized below.



Five different business models are studied, ranging from those most closely resembling Uber to apps that resemble extensions of brokerages and loadboards.

As discussed in the previous chapter, different apps attempt to provide solutions to different Shipper and Carrier needs.

- Ten of the apps studied are similar to Uber, in that they have characteristics such as automatic payment, algorithmic/single pricing, digital document storage, eliminate third-party (Broker) interaction, and location tracking.
- Seven apps are considered 'Loadboard-plus,' meaning they are based off existing Loadboards, but also provide mobile access to Carriers seeking to fill capacity "on-the-go." Carriers can search by

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Uber-like App Model

Overview

Apps following an Uber-like model rely on GPS-enabled tracking, transparent algorithmic non-negotiable pricing, automatic parameter matching, documentation and payment via app, two-party involvement (Shipper and Carrier), and push-notifications to Carriers.

While none of the apps studied encompass all of the features of Uber, the 10 apps discussed in this section most closely resemble Uber's business model. All of the companies studied are privately owned. The companies in the Uber-like app model are Cargomatic, Convoy, DashHaul, Dispatcher App, Go by Truck, Keychain Logistics, LaneHoney, LoadSmart, Next Trucking, and Transfix.

All of these companies have functionality for full truckloads, and a few can handle LTL shipments. A handful of specialty transportation mode selections include drayage, reefer, and flatbed. Some apps operate regionally, either between networked cities (San Francisco and LA, for example), or within a set radius of a city (<150 miles). In all cases, the Bill of Lading is handled by in the conventional fashion between Shipper and Carrier, not by the DFM company.

Variations on the model include examples in which Carriers can search for loads, initial quoted price is negotiable, and Carriers post desired locations rather than relying on GPS location.

Resemblance to the Uber model

The Uber-like apps studied for this report are most similar to Uber in the features that minimize transaction friction. These include features such as communication via the app, limiting transactions to Carriers and Shippers (and excluding Brokers), automating parts of the workflow, such as track-and-trace to automate Shipper check-ins, GPS location and push-notifications, and payment handling via the app.

On the other hand, currently the apps lack sufficient scale and face challenges due to the non-commodity nature of the service provided. The individual features are described in detail below.

Similarities to Uber

Many of the Uber-like apps (70% or more) share the following characteristics with Uber.

- **Communication via app:** All 10 Uber-like apps researched allow any necessary communication between Shipper and Carrier to take place via the app, whether through in-app messaging or transactions occurring entirely through the app without need for direct communication (as is the case with Uber).
- **Limited to two-party interaction:** Eight of the 10 apps are designed to limit transactions to Shippers and Carriers, without the need for any other third-party (broker) intervention. The philosophy behind the Uber model is that the most efficient and price optimized transactions occur without dispatcher intervention. Dispatchers have been eliminated from the equation.
- **Location visibility:** Nine of 10 apps allow Shippers to view the location of en route Carriers. Real time track-and-trace is becoming standard. It adds to Shipper confidence and reduces the need for back-and-forth status updates.

Loadboard-plus Model

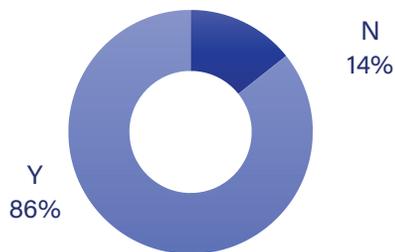
Seven companies studied are classified as 'Loadboard-plus.' Loadboards offer mobile apps where loads are searchable by Carriers, sometimes with the option of GPS-enabled location matching. Some offer booking via the app, thereby eliminating the need for phone calls and email. Carriers can view all accepted loads in one place via the app.

Advantages of Loadboard-plus apps include scale, nationwide adoption, customer trust, and familiarity to both Carriers and Brokers.

The apps are marketed as secondary products to pre-existing Loadboards. In some cases (such as Truckstop.com and 10-4 Systems), the mobile app is just one part of a larger product offering.

Loadboard-plus apps: Summary Characteristics

Web App Available



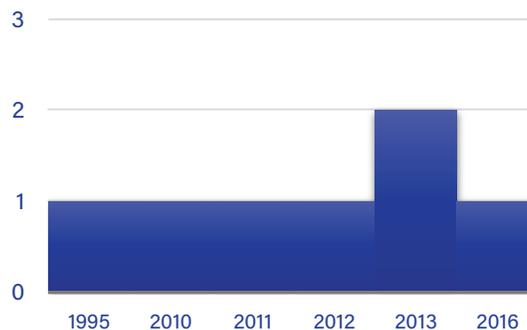
Primary Use



Operating Systems

Apps are add-ons to Loadboards, which are also available via the web. Mobile use is for Carrier convenience rather than intended to stream all interactions via the mobile app. Shippers and Freight Brokers post loads via the web.

Company Start Dates



Startup Dates

Loadboards have existed for years (Truckstop.com appeared on the web in 1995 for example; DAT has

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Competing with Freight Brokers

Freight broker classification

None of the ten companies falling into the 'Uber-like' model is marketed as a Freight Broker, and in the three Terms of Service documents readily available, two explicitly state the company's role is not that of a broker, while the third doesn't mention Freight Broker either way. However, seven of the companies are registered with the FMCSA as Freight Brokers.

FMCSA defines a Freight Broker as a company which is responsible for "the arranging of transportation or the physical movement of a motor vehicle or of property. It can be performed on behalf of a motor carrier, consignor, or consignee." Many industry experts have noted in interviews that the "Uberization" of freight resembles the Freight Broker business.

If the Digital Freight Matching industry grows and becomes more formalized, so too will the definition of these companies as either Freight Brokers or under a newly developed definition.

If the companies are deemed Brokers, each will be required to obtain Freight Broker authority through the FMCSA, which be acquired with a \$300 application processing fee and proof of insurance coverage (a Surety Bond of Trust Fund Agreement) in the amount of \$75,000¹. Brokers will also often have supplemental insurance (such as vicarious auto liability insurance) and/or contingent cargo insurance (in the case that shippers hold the brokers liable for cargo loss). Many Carriers expect Brokers to have this insurance.

Carriers are reluctant to work with Brokers without established credit, as payment completion and timeliness is a potential issue. If DFM companies are classified as brokers and payment is transmitted from Shipper to Broker to Carrier, the companies will need to establish solid credit ratings.

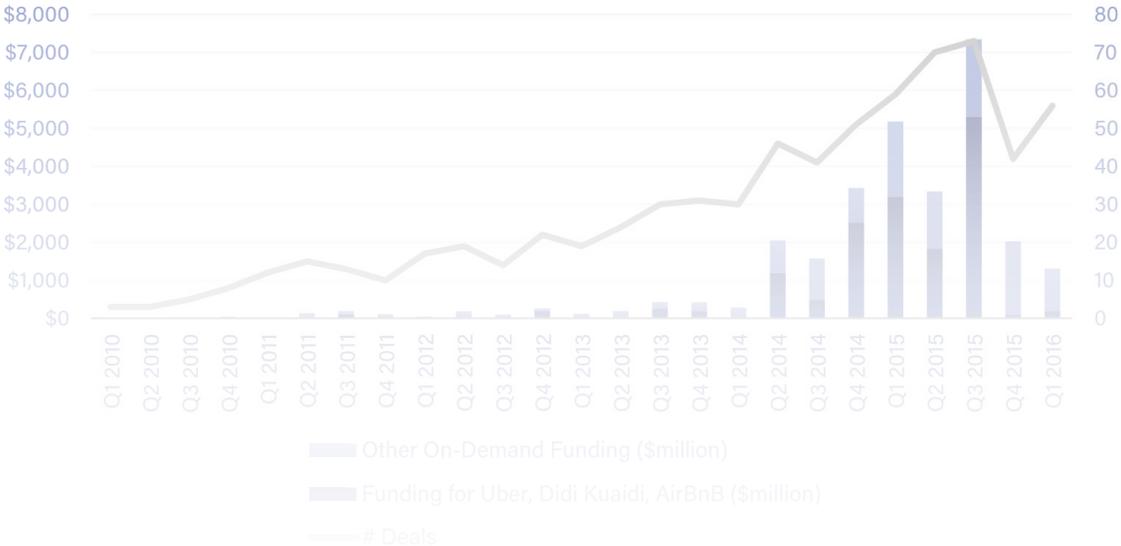
Additional responsibilities of Brokers including exception handling

Freight Brokers offer a number of benefits to Shippers, such as supplemental 3PL services (for instance, claims handling and auditing). Brokers check Carrier insurance, DOT safety ratings, and FMCSA CSA scores for compliance. Brokers also handle operational exceptions and find alternate Carrier capacity in case of equipment breakdowns.

Investment recently trended downward for On Demand.

As noted earlier in this report, total U.S. VC investment, global 'On-Demand' investment, and DFM investment each reached an all-time high in 2015. However, analytics firm CB Insights notes a recent cooling in On-Demand financing, reporting Q4 2015 and Q1 2016 global investment in 'On-Demand' companies was at its lowest since Q3 of 2014, both in terms of investment amount and number of deals². Note that the Q4 2015 trend is largely driven by no astronomical investments in the three dominant global players (Uber, Airbnb, and Didi Kuaidi, the Chinese ride-hailing company). When these companies are excluded, Q4 2015 On-Demand investment is only down 8.7% from the previous quarter, so the dramatic drop is not necessarily indicative of all apps. However, Q1 2016 showed a significant drop even after the 'big three' were excluded.

Global Investment in 'On-Demand' (Quarterly)



Do Digital Freight Matching Companies Truly Resemble Uber?

At first glance the problem for ride-hailing companies and trucking companies seems comparable: to match capacity and demand. Ride-hailing companies match empty taxis with passengers. Digital Freight Matching companies match empty truck capacity with Shippers' freight. The ideas are similar in principle — hence the “Uber for Trucking” moniker.

However, when we more specifically define the capacity, demand, and operating conditions for Uber and DFM companies, many differences are clear. The following table summarizes the similarities and differences. Cells are colored green if the criteria is met, orange if the criteria is partially met, and red if the DFM category does not meet Uber's criteria.

	Uber	Uber-like	Freight Broker-Plus	Loadboard-Plus	Last-Mile
Demand	Commoditizable demand (passengers)	Non-commoditizable demand (freight)	Non-commoditizable demand (freight)	Non-commoditizable demand (freight)	Commoditizable demand (parcel)
Supply	Commoditizable supply (capacity in the form of car seats)	Somewhat comoditizable supply (equipment type and size can be filtered by app users)	Somewhat comoditizable supply (equipment type and size can be filtered by app users)	Somewhat comoditizable supply (equipment type and size can be filtered by app users)	Commoditizable supply (any local delivery method)
Workforce	Low barrier to entry	High barrier to entry	High barrier to entry	High barrier to entry	Low barrier to entry
Exceptions	Few	Some - equipment damage or breakdown	Some - equipment damage or breakdown	Some - equipment damage or breakdown	Few
Network size	Local	Some operate locally, some nationally	National	National	Local
Regulatory environment	Averting regulations in a highly regulated industry	Operating in a deregulated industry	Operating in a deregulated industry	Operating in a deregulated industry	Averting regulations in a somewhat regulated industry
Customer Experience	Managed through star-based ratings system	Managed through star-based ratings system	Managed via personal contact	Shipper-Carrier interaction not managed	Not managed or managed through KPIs
Elimination of third-parties	Two-party only transactions	Some are two-party, some allow three-party (Shipper-Dispatcher-Driver)	No - by nature includes Freight Broker	No - loads can be posted by Freight Broker	Two-party only transactions

Company Profiles

CARGOMATIC	70
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DISPATCHER, INC.	73
GO BY TRUCK, INC.	74
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DAT Trucker	82
FREIGHTFRIEND (MERCURYGATE)	83
GETLOADED	84
TRANSMISSION	85
ITS TRUCKER (TRUCKSTOP.COM)	86
CARGO CHIEF, INC.	87
CHRWTrucks	88
COYOTEGO	89
TQL CARRIER DASHBOARD	90
TRUCKER PATH TRUCKLOADS	91
AMAZON FLEX	92
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Editor's Notes

Transfix's focus is on TL, particularly interstate owner-operators and small carriers. The Carrier base (6,000 carriers) is approximately 30% O-O and 70% trucking companies with fewer than 20 trucks.

Priorities include a focus on driver experience and investment in functionality for drivers. Other features to appeal to Carriers include detention pay, fuel advances, 24-hour direct deposit, social networking, and a trip planning tool in the app called TransPath. Industry know-how is a big selling point for the company.

Transfix offers free custom integration with a Shipper's TMS.

Company co-founders have background in both the 3PL (CEO was the president of his family's 3PL/ Freight Broker firm with \$12M in revenue), and Technology sectors.

The company has 26 employees, with a goal of employing 75 by November 2016.

The company charges a 7% fee.

At the time of Series B funding, the Wall Street Journal quoted an anonymous source who stated the company was valued at \$75 million.

Executives

CEO/Co-founder: Drew McElroy

CTO/Co-founder: Jonathan Salama

Key Dates

Start Date: August 2015

Seed VC funding: July 2014

Series A VC Funding: November 2015

Series B VC Funding: July 2016

Investors (Lead)

Series B

July 2016 — \$22M

New Enterprise Associates

Series A

November 2015 — \$12M

Canvas Ventures

Seed

July 2014 — \$2.5M

Bowery Capital

Lerer Hippeau Ventures

Market Area

Continental United States

Functionality Summary

Overview

Industry/Brokerage Connection	X
Tech/Startup Connection	X
Primary Use (Mobile/Desktop)	Mobile
Mobile App Available	X
Android Downloads (as of 7/2016)	5K-10K
Web App Available	X
TL	X
LTL	
Specialized	
Short Haul	X
Long Haul	X
Parcel	
Driver Payment Time	24 hrs

Features

Referral Program	
Reward Program	
Fuel Card	
Trip Planner	X
Driver Lane Preference	X
Carrier Preference	
TMS Integration	X
In-App Messaging	
Fuel Advances	X
Dashboard Analytics	
Driver Rating	
Loadboard	
Rate Benchmarking	
Credit Info	
Discounts	

Uber-like Functionality

Digital Transactions/Parameter Matching	X
Auto Payment	X
Auto Pricing	
Auto Dispatch	
GPS Locations	
Track & Trace	X
Push Notifications	
Single Pricing Interaction	
Immediate Booking	
Paperless Document Storage	X
Two-Party Interaction	X
All Communication Via App	X
Pooling (Automated)	
Scale (10,000+ downloads)	
Commodity Nature of Service	
Closed Network (Local Freight)	