

## The True Value and Meaning of Software-as-a-Service TMS

By Adrian Gonzalez

### Keywords

Software-as-a-Service, SaaS, Transportation Management Systems, TMS, Barilla, Dannon, LeanLogistics

### Summary

After a decade and a half of innovation, the Transportation Management Systems (TMS) market is well established today. Logistics executives seeking

Companies must expand their definition of TMS beyond software. While transportation planning and execution software functionality is the core of a TMS, it is only part of a complete solution. Establishing and maintaining connectivity with a dynamic set of trading partners is an integral component of TMS, but one that many companies fail to consider when evaluating solutions.

a TMS have a variety of options to choose from, and generally speaking, there is a high degree of parity—from a feature-function standpoint—between available solutions. So, the question facing logistics executives today is: How do we choose the right TMS for our company?

First, companies must expand their definition of TMS beyond software. While transportation planning and execution functionality is the core of a TMS, it is only part of a complete solution.

Transportation processes are inherently network-centric, involving the exchange of information between many external parties, including carriers, suppliers, customers, and logistics service providers. Establishing and maintaining *connectivity* with a dynamic set of trading partners is an integral component of TMS, but one that many companies fail to consider when evaluating solutions.

Second, companies must think beyond a solution's current capabilities and also consider a vendor's innovation cycle—i.e., how often new functionality is released, as well as the time, cost, and effort required to implement product enhancements.

Finally, companies must think beyond their four walls and factor in inter-enterprise capabilities, such as the ability to benchmark their transportation



performance against other shippers and the ability to execute collaborative shipping processes.

Network connectivity, continuous innovation, and inter-enterprise capabilities are among the fundamental attributes of a software-as-a-service (SaaS) transportation management system. Although SaaS has been around for several years, many logistics executives still do not fully understand its true meaning and significance. Part of the problem is that some vendors use “software-as-a-service” synonymously with “hosting,” even though significant differences exist between the two.

This report will outline the fundamental attributes of a true software-as-a-service TMS, as well as highlight the next frontiers for SaaS. The report will also highlight, via case studies of Barilla and Dannon, the unique value SaaS TMS provides to users compared to hosted and internally-deployed solutions.

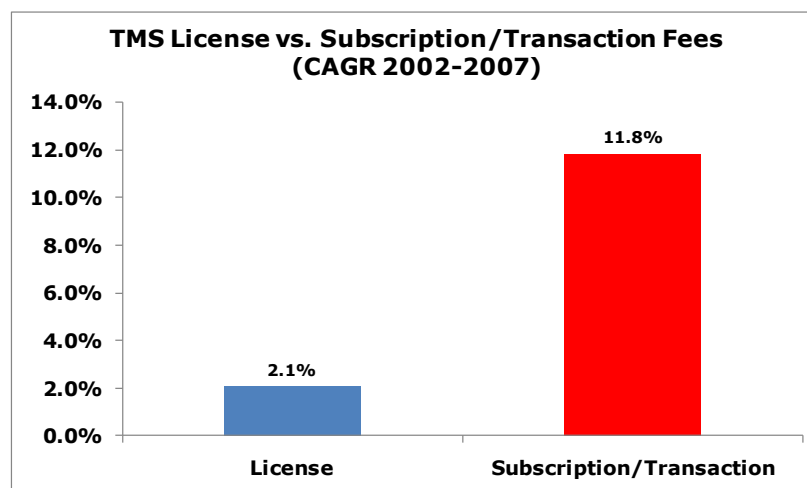
## **Analysis**

Over the past decade, the Transportation Management Systems (TMS) market has grown from \$487 million to about \$1.2 billion in 2008.

The scope, functionality, and architecture of TMS applications have changed significantly over the years, and so has the vendor landscape. Today, software vendors are transforming TMS from a fragmented collection of applications to a unified platform where users can execute role-specific processes via configurable user interfaces, workflows, and web services. And TMS users are no longer just a handful of employees in the transportation department, but hundreds or even thousands of people across the enterprise and value chain, executing a wide range of business processes.

Compared to a decade ago, transportation management systems are more affordable today, and companies have more deployment options, including software-as-a-service (SaaS), which is the fastest growing segment of the TMS market.

Lower upfront costs and faster time-to-value are two key reasons why companies are choosing software-as-a-service (aka “on demand”) TMS solutions over internally-deployed solutions.



### Software-as-a-Service is fastest growing segment of TMS market

But what exactly does software-as-a-service TMS mean, and how is it different from traditional and hosted TMS solutions? The answers lie at the heart of another question: What is a transportation management system?

Below is the definition ARC has used historically in its market studies:

*Transportation Management Systems are software solutions that facilitate the procurement of transportation services; the short-term planning and optimization of transportation activities, assets, and resources; and the execution of transportation plans. They address all modes of transportation, including Ocean, Air, Rail, Full Truckload, Less-than-Truckload, Parcel, and Private Fleet. In addition to managing the physical flow of goods, they also manage the flow of transportation-related information, documents, and money. TMS also include performance management and collaboration capabilities.*

There is a critical aspect of transportation management systems, however, that this definition and many companies evaluating TMS solutions overlook: the need to communicate and collaborate with a network of carriers, suppliers, customers, logistics service providers, and other trading partners.

Transportation processes (tendering, booking, track and trace, appointment scheduling, freight payment, etc.) are inherently network-centric, involving the exchange of information between many external parties. Traditional, internally-deployed TMS solutions require companies to establish and maintain connectivity (via EDI, web portals, and other means) with an ever-changing set of trading partners.

Many companies, however, fail to consider the time, cost, and resources required to enable and manage a connectivity network. It is a challenging task that few companies would call a core competency. This is why poor data quality (late, inaccurate, and/or incomplete) is the Achilles' heel of supply chain management, a problem that results in higher supply chain costs and lower productivity.

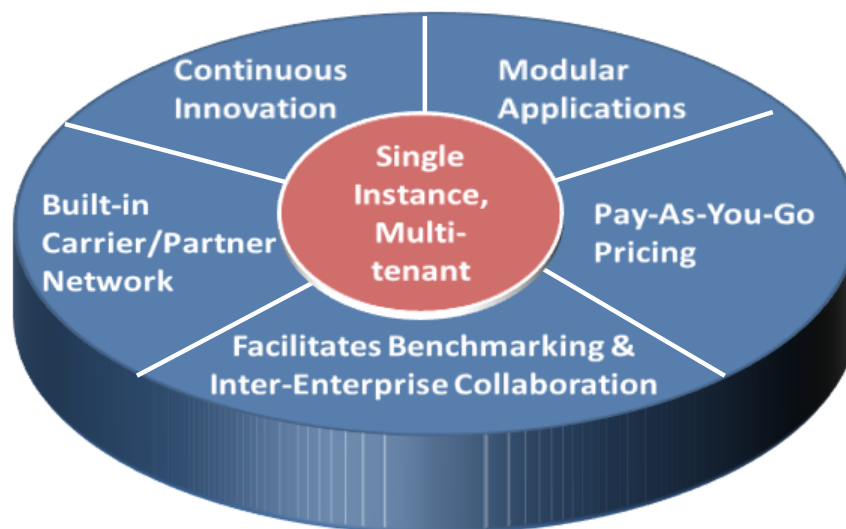
Therefore, companies that are in the market for a transportation management system must think beyond software, the features and functions of the application, and also take into account network connectivity, how information will be exchanged with external partners.

Simply put, a TMS without connectivity is like a computer without Internet access: useful, until you need to collaborate and communicate with others.

And that is one of the fundamental attributes and differentiators of a software-as-a-service TMS. It is a transportation management system with a built-in network of carriers and other trading partners.

### **Fundamental Attributes of Software-as-a-Service TMS**

The graphic below summarizes the fundamental attributes of a software-as-a-service TMS, the key factors that differentiate it from traditional and hosted TMS solutions.



**Fundamental attributes of Software-as-a-Service TMS**

### Single Instance, Multi-tenant

This is the most fundamental of the attributes, the one that effectively enables all the others. “Single instance, multi-tenant” means there is only one software/hardware setup of the transportation management system that multiple shippers, carriers, and other trading partners use. It gives shippers access to a solution that is already implemented and powering the transportation operations of other companies. It’s analogous to Google.

Single instance, multi-tenancy is important because it opens the door to a wide range of inter-enterprise processes and capabilities, such benchmarking and multi-shipper collaboration.

There isn’t a separate instance of Google for every user; there is only one Google. And like Google, each SaaS TMS user can *configure* the solution (which is different than *customizing* code) to meet their requirements.

In contrast, hosting generally implies that every company has its own software, hardware, and infrastructure setup. And every setup is unique. For example, one company could be using the latest version of the TMS, while another company is using a three year old version. In short, hosting is like an in-house implementation, except the setup resides at a third party.

Why is single instance, multi-tenancy important? It opens the door to a wide range of inter-enterprise processes and capabilities, such benchmarking and multi-shipper collaboration, that are more difficult or impossible to enable with traditional or hosted implementations.

### Built-in Carrier/Trading Partner Network

A built-in network of shippers, carriers, and other trading partners is an inherent characteristic of a single instance, multi-tenant TMS. The network is a key reason why companies can generally implement a software-as-a-service TMS much quicker than a traditional TMS.

The network also provides shippers with access to relevant carriers to satisfy their transportation needs. Many companies have a difficult time assembling a large pool of carriers, who align well with their transportation network and requirements, beyond those they currently use or have worked with in the past. Using a software-as-a-service TMS, however, addresses this problem. LeanLogistics, for example, has about 5,500 carriers connected to its On Demand TMS network. As part of its *Carrier Procurement* managed service, LeanLogistics identifies carriers within its network that meets a shipper’s performance and capacity requirements. Ace Hard-

ware, for example, wanted to cast a "wide net" when it conducted its transportation procurement engagement last year. Lean introduced Ace to a large base of carriers and the RFI was sent to almost 500 carriers. The procurement engagement uncovered a \$3.9 million (about 4 percent) annual savings opportunity for the company.

Finally, establishing and testing EDI and other types of electronic communication with hundreds of trading partners is among the most labor-intensive and time-consuming aspects of a traditional TMS implementation. But with a software-as-a-service TMS, most (if not all) of a company's carriers and trading partners might already be on the network. Network connectivity is not exactly "plug and play" in a SaaS environment, but the on-boarding process is greatly accelerated nonetheless. The net result is faster time-to-value.

### Continuous Innovation

New versions of traditional transportation management systems, like other types of software, are typically released once or twice a year. The time, cost, and effort to upgrade vary depending on what is new and different about the new version. If the new version includes a significant change in architecture or user interface, the upgrade process could be as costly and lengthy as a new implementation. But even relatively simple upgrades still have to be budgeted, approved, and planned for, which is why many companies fall behind on upgrades.

The innovation process in a software-as-a-service environment is fundamentally different. In short, with software-as-a-service, there are no stop signs on the innovation road.

The innovation process in a software-as-a-service environment is fundamentally different. Incremental enhancements are introduced on a continuous basis, and because there is only one instance of the application, the new features and functions are available to everyone at once (users have the ability, in most cases, to enable or disable new features). In short, with software-as-a-service, there are no stop signs on the innovation road.

Also, innovations driven by "best-in-class" industry leaders are shared by everyone on the network. This is something that many small and midsize companies particularly value. The network effectively serves as a platform for accessing best practices, which in turn drives continuous improvement, not only for the shipper but also the SaaS TMS provider. By understanding the practices employed by these leaders, solution providers can incorporate

these "best practices" into the software. This feedback mechanism links product innovation with practices proven to deliver industry-leading results. And as these practices evolve over time, in response to changing business conditions or customer requirements, the capabilities of the TMS will also advance.

### **Modular Applications**

Instead of taking a "big bang" approach to implementing a TMS, companies can address specific "pain points" by deploying (and paying for) a TMS one module at a time. For example, a company might implement a tendering, booking, and track and trace module first, and then add other capabilities over time, such as appointment scheduling, optimization, and freight audit and payment. This approach results in faster time-to-value, and in many cases, companies use the savings achieved from the initial implementation to fund future ones.

### **Facilitates Benchmarking and Inter-Enterprise Collaboration**

As highlighted earlier, a software-as-a-service TMS creates a network of shippers, carriers, and other trading partners, executing millions of transactions through a single system. All of this network data, such as rates, carrier performance, and transit times, enables network-level benchmarking, so companies can compare their performance against an external benchmark and quickly pinpoint problem areas.

The network also facilitates multi-shipper collaboration. Historically, these types of initiatives have had limited success, especially if shippers had to manage the process themselves. This suggests that a third party needs to be involved, not only to engineer the solution, but also to manage the day-to-day operations. Another issue that has plagued past attempts is a lack of shipment density and redundancy. For example, if one leg of a continuous move is not ready for pick-up as planned, the whole route breaks down and the expected savings are nullified. This implies that a collaborative routing solution must not only include highly-reliable and repeatable freight, but also have enough redundancy to heal routes when exceptions occur. And of course, you need technology to design, optimize, and automate the collaborative process. A software-as-a-service TMS with a critical mass of shippers and transaction volumes addresses these key factors.

### Pay-As-You-Go

Instead of paying a relatively large license fee upfront, companies typically pay a monthly subscription fee, converting what was previously a capital investment into an operating expense. This is one of the key reasons why many companies have selected a software-as-a-service solution.

Pay-as-you-go pricing, however, is not unique to software-as-a-service. A growing number of traditional software vendors now offer a variety of payment options, including “leasing” programs. What makes software-as-a-service unique is pay-as-you-go pricing coupled with the other attributes described above.

### **The Next Frontiers for Software-as-a-Service TMS**

The adoption of software-as-a-service TMS is well underway. The next frontiers for SaaS TMS are the addition of managed services and the rise of self-service applications, both of which are already evident today.

#### **LeanLogistics Carrier Procurement Service Offering**

- Assemble Request for Proposal (RFP)
- Establish lane templates, accessorials, etc.
- Augment carrier base with Lean's network carriers
- Develop Web portal for carriers to access and input information
- Provide network analytics
- Support multiple bidding rounds
- Upload carrier rates into TMS
- Develop savings reports

#### Managed Services

Even if companies have access to good benchmarking and best practices information, finding the time and resources to execute continuous improvement activities is often a challenge. The people with the necessary skills and experience to execute these projects are usually consumed with their day-to-day responsibilities, such as ensuring that customer commitments are met and managing exceptions.

Companies have traditionally addressed these resource constraints by hiring outside consultants, or they ultimately decide to outsource their entire operations to a Logistics Service Provider (LSP). These are good options for many companies, but not all. The consultant approach can be cost-prohibitive for some businesses, and the engagements usually have a fixed scope and timeframe. Outsourcing to a LSP, on the other hand, can greatly disrupt a company's

organizational structure, as the LSP essentially replaces a company's internal resources and assets, requiring a significant shift in roles, responsibilities, and management structure.

A middle-ground solution is to bundle managed services with a software-as-a-service TMS. LeanLogistics, for example, offers several managed ser-

vices, including [Managed Transportation](#), [Procurement and Benchmarking](#), and [Freight Optimization](#).

Imagine an app store for logistics software, similar to Apple's iPhone App Store. This is the future of software-as-a-service TMS, the next step in its evolution.

ARC first highlighted Managed Transportation Services (MTS) in a paper we published a few years ago, where we described MTS as a new business model that's well suited for companies with highly-fragmented and decentralized transportation planning and execution operations that want

to outsource these functions, but also want to have centralized visibility to transportation activities and performance metrics; want to retain their direct relationship with carriers; and want to pay based on the cost of the services performed not the size of their freight spend.

Briefly stated, for companies with resource and time constraints, Managed Transportation Services is the "who" in continuous improvement.

### [An App Store for Transportation Software](#)

Imagine an app store for logistics software, similar to Apple's iPhone App Store, where a transportation manager could browse through various applications (e.g., an app for procurement, appointment scheduling, or freight audit and payment), buy them online using a credit card, download them, run some quick installation wizards, and off they go, on the road to improved productivity and cost savings.

This is the future of software-as-a-service TMS, the next step in its evolution.

SaaS was supposed to help small and midsize companies automate their transportation processes, but the early adopters have mostly been large companies. Although SaaS implementations are generally less complex and more affordable than implementing a solution in-house, SaaS solutions still require weeks of implementation work. An implementation measured in weeks or days is better than months, but the vision is to drive it down to hours. No vendor is fully there yet, but a few solution providers, like LeanLogistics with its LeanSource solution, are moving quickly in that direction.

An "App Store for TMS" will transform the industry in a variety of ways:

- It will increase the number of TMS users by an order of magnitude or more. This will lead to increased productivity and cost reduction across the industry, as companies replace spreadsheets and fax machines with apps connected to a network.
- The volume of transportation data (e.g., rates, transit times, carrier performance, capacity) flowing through the network will increase exponentially. This will lead to enhanced benchmarking, analytics, and network design capabilities, as well as predictive technologies that will leverage the behavioral nature of the network data to further optimize shipper and carrier networks.
- It will enable users to execute transportation processes and access transportation information from “anywhere” using a multitude of different computing devices, including smartphones. The next generation of users will not be tethered to their office computers.

### **Case Studies: Barilla and Dannon**

ARC interviewed Sandy Evett, VP of Logistics and Customer Service at Barilla, and Diane Van Wagner, Director of Transportation at Dannon, to get their perspectives on software-as-a-service TMS. Both companies are using LeanLogistics’ On Demand TMS solution, and Barilla is also using Lean’s managed services. What follows is an edited transcript of our conversation.

#### **Q: How were you managing your transportation operations before implementing Lean’s On Demand TMS, and how are you using the solution and services today?**

*Ms. Evett (Barilla):* We were not using a TMS prior to implementing Lean. We relied mostly on manual processes—phone, fax, email, and paper routing guides. Implementing Lean allowed us to automate our transportation planning, routing, and tendering processes. Our relationship with Lean has evolved over the past six years. We started out using the software-as-a-service TMS ourselves, then we transferred shipment execution responsibilities over to Lean, and today we are leveraging more of their managed services, including procurement, carrier management, and continuous improvement.

*Ms. Van Wagner (Dannon):* We were using a traditional TMS solution from another vendor, but we couldn’t get good visibility to on-time delivery and pick-up data. Also, execution was still manual. We had to print and fax

tenders and bookings, in part because many of our refrigerated carriers don't have EDI capabilities. Our initial thought was to upgrade our existing TMS, until we came across Lean and saw the big difference between what we had and the capabilities Lean's solution offered. We have been using the solution for about a year, and we now have a paperless process and our transportation and customer service teams have greater visibility to shipments and performance metrics.

"Software-as-a-service is stepping into the 21<sup>st</sup> century. It gives you the answer to 'What else?' In other words, software-as-a-service opens the door to new capabilities that you may not know about if you have only used traditional software in the past."

*Diane Van Wagner, Director of Transportation, Dannon*

#### **Q: How would you define software-as-a-service TMS to an industry peer?**

*Ms. Van Wagner (Dannon):* Software-as-a-service is stepping into the 21<sup>st</sup> century. It gives you the answer to 'What else?' In other words, software-as-a-service opens the door to new capabilities that you may not know about if you have only used traditional software in the past. For example, the ability for carriers to schedule dock appointments online, just like you can pick your own seat on an airplane

when you book online, is greatly facilitated by software-as-a-service. Also, the level of engagement with Lean is less formal – easier, more pleasant – than working with a traditional software vendor. I'm completely at ease picking up the phone and talking to them about ideas for improvement, and it's an ongoing conversation.

*Ms. Evett (Barilla):* I would define software-as-a-service as a technology solution that is managed, maintained, and enhanced by an external partner. I would also point out that with SaaS, you get the benefits of ongoing solution enhancements without additional investments. This is something that we didn't always take advantage of when we were using the solution ourselves. Enabling new features often lost out to other priorities. But this is now one of the benefits of using Lean's managed services. The team managing our operations at Lean takes advantage of all the capabilities at their disposal to meet our requirements. Finally, as has been our experience, software-as-a-service is a pathway to managed services. Transitioning day-to-day responsibilities to Lean was facilitated by having all of our transportation data and partners already on the system.

**Q: Was your internal IT team supportive of the decision to use a software-as-a-service solution, and what role did IT play in the implementation?**

*Ms. Evett (Barilla):* We just completed a worldwide rollout of SAP, so our IT team was very focused on that effort. But IT was very supportive of our implementation, and they played an important role in mapping the exchanges between SAP and Lean, as well as helping us with reporting.

*Ms. Van Wagner (Dannon):* IT always has more on their plate than they can handle, so going with a software-as-a-service solution eased their workload a bit. As with Barilla, our logistics team worked side-by-side with IT to manage the integration between SAP and Lean.

**Q: What advice would you give to companies considering a software-as-a-service TMS? What attributes should they look for in a solution and provider?**

*Ms. Van Wagner (Dannon):* Ask the provider for customer references and visit them, see firsthand how the solution works in a real transportation environment. I had one of my colleagues spend the day with a Lean customer and it was a valuable experience. How easy is the solution to use? Does it provide the level of visibility you need? How is network connectivity enabled and managed? These are some of the questions that I would ask.

*Ms. Evett (Barilla):* The solution should integrate well with the rest of your ERP processes. Speed and ease of implementation is another important factor, as well as the strategic vision of the solution provider. You should look for a partner that is better than you are and can take you where you want to go.

**Q: What's your outlook for transportation in 2010 and for software-as-a-service TMS in the years ahead?**

*Ms. Evett (Barilla):* We're keeping an eye on trucking capacity, knowing that it will get tight at some point down the road. Our focus next year will be on internal cost-savings opportunities. The next phase for software-as-a-service and our relationship with Lean is to leverage the information in the network to take a more holistic "CPG supply chain" view of our operations to drive greater efficiencies. We'll also look to expand what we're doing here in North America to other regions in the world.

*Ms. Van Wagner (Dannon):* We're also concerned about what will happen to trucking capacity once the economy picks up. It's one of the reasons we're looking at Lean's Freight Optimization Services (FOS). In terms of next steps with the TMS, we're looking into how to provide our customers with greater visibility to their orders and shipments.

## Conclusions

- Compared to a decade ago, transportation management systems are more affordable today, and companies have more deployment options, including software-as-a-service (SaaS), which is the fastest growing segment of the TMS market.
- The need to communicate and collaborate with a network of carriers and other trading partners is a critical aspect of transportation management systems that many companies overlook when evaluating TMS solutions. Companies often fail to consider the time, cost, and resources required to enable and manage a connectivity network.
- Companies that are in the market for a transportation management system must think beyond software, the features and functions of the application, and also take into account network connectivity, how information will be exchanged with external partners.
- The fundamental attributes of software-as-a-service TMS are single instance, multi-tenancy; built-in network of carriers and trading partners; continuous innovation; modular applications; facilitates benchmarking and inter-enterprise collaboration; and pay-as-you-go pricing.
- Single instance, multi-tenancy is the most fundamental of the attributes, the one that effectively enables all the others. It opens the door to a wide range of inter-enterprise processes and capabilities, such benchmarking and multi-shipper collaboration.
- The next frontiers for SaaS TMS are the addition of managed services and the rise of self-service applications, both of which already exist.

*This paper was written by ARC Advisory Group on behalf of LeanLogistics. The opinions and observations stated in the paper are ARC's. For further information or to provide feedback on this paper, please contact the author at [adriang@arcweb.com](mailto:adriang@arcweb.com).*