

Viewpoint paper

Rethink the supply chain

Information management, analytics, and mobility in the freight and logistics environment



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Freight and logistics providers now seek to create a smarter and more connected supply chain. They can, with a more advanced approach to information management, analytics, and mobility.

Introduction

Freight and logistics firms now compete in a changed and still-changing world. Consumers and retailers expect and demand cost-effective, faster, and more responsive deliveries. Supply chains are increasingly global and complex. Competition is fierce, margins are tight, and providers must find new customers and new ways to create and deliver value in a dynamic transportation marketplace.

Adding to the complexity, many freight and logistics organizations must confront these challenges with obsolete information and connectivity systems. Those legacy systems simply cannot provide the visibility, control, insights, and mobility needed to succeed in today's freight and logistics (F&L) environment.

To compete—even to survive—freight and logistics providers must simplify and strengthen the supply chain with next-generation information management, analytics, and mobility capabilities.

In this viewpoint paper, HP examines the powerful trends that now affect integrators, class-one rail, trucking, air and ocean freight, and third-party logistics providers. The authors explore the need for a strategic, enterprise approach to real-time data and analytics as the logical way to monitor and enhance transportation performance. They also describe how enterprise-class mobility is the enabler used to connect stakeholders at every link in the transportation value chain. HP then offers a clear view on how best to plan, deploy, and manage advanced information, analytics, and mobility capabilities in a freight and logistics organization.

Information: the key to F&L value

To address those challenges and to pursue those opportunities, freight and logistics companies need new ways to manage and analyze information. By better accessing more immediate and precise data, transportation-oriented companies can gain real-time insights across disparate and often global operations.

Those insights can and must translate into the ability to make better business decisions—decisions that improve service delivery, enhance customer satisfaction, and drive greater performance, cost-efficiencies, and profitability.

How can F&L firms best leverage the growing power of data?

It may help to understand the key elements in any successful data and analytics ecosystem. A modern approach to information management and analytics should address the requirements of evaluation and planning, data architecture, a platform for efficient data exchanges, and a logical strategy for implementation and long-term management.

To better manage operational and analytical requirements, F&L organizations must consider the requirements of hardware and software. They must also look at strategic planning, data warehousing and management, performance monitoring and improvement, and advanced analytic capabilities.

A workable data and analytics model must enable companies to gain control of the three crucial activity domains of the freight and logistics sector:

- **Operations.** F&L organizations increasingly rely on current, accurate information to better understand what happened in the past, what is occurring at any point in time, and what to expect in the future across increasingly complex and global supply chain operations. A strong data and analytics structure opens deep and broad visibility into shipping patterns, root causes for shipment delays, and logical corrective actions to any problem.
- **Sales and marketing.** Information is the key to finding and securing new customers and new business. A robust information and analytics system provides metrics and reporting on a vast array of variables—such as who is using F&L services, the impact of spikes in fuel costs, and the implications of raising or lowering customer pricing. Fast-based insights give executives the ability to make faster and better decisions on how best to target and sell new and existing customers.
- **Customers.** Experienced freight and logistics veterans know that serving and satisfying current customers is far less costly than finding new business. A modern information management and analytics platform enables F&L companies to better understand, serve, and satisfy today's more demanding transportation customer. Timely and precise information—and the insights that flow from good data—are absolutely crucial to the ability to analyze service failures, to identify patterns and trends, and to take preventive or corrective action. Those capabilities translate into key competitive advantages in the real world of freight and logistics. For example, take the management of service agreements. These often require a trade-off between the need to add new customers and the drive to standardize services and reduce costs. Many new contracts include language to customize standard services. The key performance indicators used to measure those changes can create friction between the customer and transportation service provider.

A robust information management and analysis capability enables the service provider to better monitor, manage, and satisfy customized service level agreements—even across high numbers of customers in a global delivery environment.

Route management is another crucial activity that can be enhanced by more effective data management and analytics. Real-time route data allows F&L firms to select the best transportation method and routes that avoid congestion or delays.

By capturing and analyzing on-board data—including speed, braking, engine idles, and other fleet or operator-specific variables—companies can better monitor and control fuel-related consumption and costs.

F&L providers are combining the power of RFID, mobile communications, and data management and analytics to monitor and understand every step in the supply chain. They can then offer measurable value—in the form of precise product locations, arrival times, condition, and costs—to customers who increasingly see information as one of the most important deliverables from any F&L provider.

Together, those capabilities enable F&L organizations to convert information, including big data, into usable and contextualized facts and figures. It does, in effect, unlock the value in a freight and logistics company's information environment.

This comprehensive approach to data and analytics helps transportation-oriented firms improve service delivery and, therefore, enhance the customer experience. Good data and analytics can also help companies reduce risk, control costs, and find and pursue new market opportunities.

Mobility: the conduit to greater connectivity

Mobility solutions have been in use in the transportation industry for some time. The introduction of 3G and 4G wireless networks, improved operating systems, and mobile user behaviors provide new opportunities to create efficiencies and higher customer satisfaction.

The transportation industry stands to benefit from changes in the broader consumer use of mobility. This is part of the so-called “consumerization of IT” trend. People are increasingly using smartphones in their daily lives—with all the benefits of continuous, high-bandwidth connectivity, stronger device capabilities, and richer applications. While using and adapting to the same mobile technologies, the F&L firm and its customers can gain diverse but interrelated benefits.

Mobility in transportation operations

Transportation industry field workers have long used mobile devices for odometer reading, updating maintenance records, and other tasks. In some cases, they may have been able to send the collected data back to the office periodically—when they had connectivity—but in many instances, they would have to do that as a batch process at the end of the day. This created a significant lag time between when the data was recorded and when it was actually entered into a management system. In some cases, this limited the effectiveness of its use.

Further, field workers typically downloaded their “work lists” in the morning before they rolled out. Without reliable connectivity, managers could not make changes to the dispatch schedule in real time or otherwise direct the field workforce. And the employees themselves could not take next steps for a detected problem because they could not upload data on what they observed, have it analyzed by a specialist or supervisor, and then receive instructions on how to proceed.

That lag time equated to lost time, lost productivity, and potentially dissatisfied customers. Field management and supervision need real-time data so they can make real-time decisions and take real-time action.

Timely data for faster decisions

Mobile technology and devices are advancing at a rapid pace thanks to widespread adoption across many consumer and commercial markets. This advancement in mobile technology is enabling the transportation industry to equip their workforces with a broad range of devices such as notebooks, tablets, rugged terminals, and smartphones.

Mobile technology advancement also impacts the “in-the-office” transportation worker as evidenced by corporate “bring your own device (BYOD)” policies. Transportation company employees who rely on IT tools to do their job often come into the workplace with their own compute platform. Transportation experts are finding it less disruptive to the employees and less costly for the utility to enable them to securely access corporate applications and resources from their device of choice.

Greater device processing power, innovative operating systems, and high-bandwidth 3G/4G networks serve as the catalyst for real-time data connectivity to enable a new era in the transportation industry. Now mobile devices and applications can facilitate the two-way transmission of real-time data to systems and applications back at headquarters that can provide analysis and guidance to the field worker. This turns raw data into actionable information, in real time.

Providing access to the same apps as in the office

Being linked to corporate systems in real time, the field workforce can operate as if they were at their desk. They can have the same access to all business applications and be made even more integral to the transportation industry’s operations. They now have the same access to expert analysis, can check inventories and order replacement parts right away if they’re available, or begin the procurement process if they’re not.

Furthermore, supervisors can update the worker’s task list in real time to balance available resources to changing conditions. Throughout the day, supervisors can adjust scheduling and task lists as needed to accommodate unforeseen events or circumstances.

Richer applications for more effective communications

Just as mobility solutions provide real-time connectivity, they also provide feature- and content-rich applications that combine several data inputs to effectively communicate the situation the worker is finding in the field. This enables supervisors to make effective decisions on how to address it.

Let’s take smartphone solutions as an example. Here mobility enables the field worker to scan new vehicle identification data and scan data from the vehicle being maintained or replaced. The worker can also provide geographic information system (GIS) coordinates, as well as photos of the meter location and current condition. The worker can immediately transmit that data back to the corporate office for analysis, decision-making, and guidance.

Scanners and sensors

Adding barcode scanning and radio-frequency identification (RFID) readers to the device provides greater data accuracy to further enhance the benefits of mobility. A smartphone's data collection capabilities can include images and video capture of the equipment's condition, which can better inform repair and maintenance decisions. They can also be used to better detect anyone tampering with the system. Content-rich, multimedia data can immediately be sent to supervisors and specialists for analysis, decision-making, and guidance.

The transportation industry can also employ sensor technologies more widely as their cost-benefit profiles become more attractive. Then workers can be quickly directed to problem areas, collect richer data when they get there, validate the true state of the problem, and receive better guidance on how to address what they found.

Many of the mobile capabilities addressed above require web connectivity to reach their full potential. New mobility solutions provide field workers with managed, secure access across the business value chain. This enables them to tap third-party analysis for more informed decision-making on a problem, the appropriate next steps to solve it, and expedited procurement to replace a part, among other tasks.

Changing customer views of mobility

When discussing how mobility impacts operations, it's important to note it also enables transportation to solicit customer input directly regarding location, speed, and operating conditions of a vehicle via smart devices. Customers effectively become extensions of the transportation industry staff, acting as its eyes and ears.

The rapid market adoption of smartphones enables people to send content-rich messaging along with the GIS locations. The transportation services team can then quickly create a trouble ticket and dispatch a worker to the location.

Better data and earlier notifications can expedite the process of filing the service request and, ideally, prevent a potential service disruption. Mobile-enabled social media can be used to send broader public notifications about an emergency or when the vehicle is nearing recommended service thresholds.

Manage accounts via mobile

Beyond emergencies, the broad consumer adoption of mobility—and social media—also raises customers' expectations in how they should be able to manage more routine services provided by the transportation industry. Once a service differentiator, mobility solutions are now something customers expect from their transportation services provider.

Changing customer views of mobility align well with the transportation industry's business and customer satisfaction goals. Both operational efficiency and customer satisfaction are enhanced by letting customers manage and monitor information directly from a mobile device.

Further, mobility, social media, and data analysis enable the transportation industry to market new products and services to customers directly based on user profiles. Offers can be customized after analyzing demand management, line maintenance, and other operational issues.

Educate and empower customers

The mobility-enabled, two-way communications between the transportation services provider and its customers facilitates education in how resources can be better managed. For example, customers can learn to use mobility to monitor their shipments and track them through the day.

A comprehensive strategy

To fully leverage the power of mobility and advanced information management and analytics, freight and logistics firms must provide more than transportation. They must evolve to become true information providers as well. F&L firms can compete and succeed by delivering value-added services, enhanced cargo security, and measurable cost savings.

Meeting those broad objectives will require creating more strategic supply chain operational platforms with fully integrated data, processes, and mobile capabilities.

Forward-looking freight and logistics firms are working to automate or reengineer processes, to modernize legacy systems, and to consolidate and synchronize assets and IT. They should seek more unified command and control structures and closer alignment between governmental and commercial operations.

Stronger supply chains give organizations greater visibility into shipments and assets, and should support a more agile sense, interpret, respond, and recovery cycle. They support collaboration and greater capacities and allow faster and more accurate forecasts for timing, supplies, and maintenance.

A data and analytics approach

To improve their bottom-line business performance, freight and logistics firms must understand what happened in the past, what is happening right now, and what they expect will happen in the future. To gain those powerful insights, F&L providers need high-performance information management and analytic systems that are flexible, scalable, and tuned to the specific needs of the transportation environment.

Those capabilities must rest on a solid data architecture designed to get the right information to the right person at the right time. The architecture should provide information and analytics for F&L operations, sales and marketing, and customer-facing activities. It should be capable of supporting all elements of a robust business intelligence system, including strategic and management capabilities, data warehousing, and performance management.

To meet the needs of the rapidly changing freight and logistics sector, an information architecture should also be able to manage the demands of big data—including data volumes and file sizes, both structured and unstructured data, and the unique requirements of social media, multiple channels, and web- and mobile-oriented information.

HP recommends a phased, modular approach to building data and analytic capabilities in the freight and logistics environment. Any effort should start with an assessment and evaluation of current business intelligence capabilities. This would be followed by mapping a logical route to the desired data and analytic state. F&L organizations can then implement a high-performance information and intelligence structure in a manageable, lower-risk way.

The primary objective of any information management and analytic effort should be to give management greater visibility into historic, current, and future activities within the F&L organization. By supporting improvements in operational and customer service activities, strong data and analytics can measurably improve service reliability and overall customer satisfaction.

Savvy F&L firms can also leverage data and analytic systems to reduce operating and administrative costs, to target more productive customers, and to drive increased sales and profits.

A comprehensive mobility strategy

The benefits of mobility solutions for transportation and its customers are wide-ranging. Implementing them successfully requires a comprehensive strategy that's equal to the task. Keep several critical issues in mind when you devise your strategy:

For field work, organizations should determine which applications are best optimized for mobile access. In fact, not every application should be mobile-enabled. For example, if connectivity is an issue, then workers might only be able to download compute-intensive applications when they're back at the office.

For customers, F&L firms should consider developing rich applications that truly add value, and should avoid mobile applications that merely push static information. People have high expectations about what rich mobile and social media applications should do for them. Falling short of those expectations can alienate and disappoint the customer, leading to uninstalled applications.

Transportation-oriented firms can integrate customers into their operations through mobile-enhanced social media applications that educate and empower their participation in their own resource use. Mobility and social media can be used to keep customers informed on changes in resource availability, so they will not be surprised in the event of a curtailment.

Of course, security must be a consideration for any application that communicates sensitive customer or vehicle data over a wireless network.

The value of partnership

Given the complexity of these challenges, many freight and logistics firms now look to experienced partners to help plan and deploy information management, analytics, and mobility capabilities.

When evaluating potential partners, F&L organizations should seek allies with proven experience in meeting the challenges of integrators, class-one rail, trucking, air and ocean freight, and third-party logistics providers. Those capabilities should encompass the demands of data management and analytics, tuned specifically to F&L operational, marketing, and customer needs. Any solution should be capable of handling the unique demands of big data, multiple channels, and social intelligence.

To get those insights to the right person at the right time, F&L firms need end-to-end mobile platform, technology, and service solutions. Those solutions may require application development, mobile device and service management, and mobile application storefronts. F&L firms can use these capabilities to shift from a desktop- or laptop-oriented setting to smaller, smarter on-board and mobile devices.

Conclusion

Freight and logistics firms face a tough global economy, more demanding customers, and very real competitive and operational pressures.

Forward-looking providers now recognize the need to gain clear visibility into operational and service performance, to control costs, and to improve satisfaction for current customers and sales to future prospects. To do those things, F&L firms must strengthen their supply chains with better information, keener insights, and broader connectivity.

As we have seen, data management and analytics are vital to better understanding and serving today's demanding transportation customer. And mobility is the connecting technology that enables F&L firms to deliver the right information to the right person at the right time.

Information and mobility will be table stakes in the competitive transportation marketplace of the future. To gain those capabilities, savvy freight and logistics companies must work to plan, deploy, and manage more visible and responsive operations.

That is how to create a smarter, more connected supply chain—and a more successful freight and logistics organization.

For more information

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