



# Adopt a service orientation

Leverage this service-driven approach in the transportation sector





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Globalization, low-cost competitors, and economic weakness pose serious threats to transport-oriented companies. To survive and succeed, pressing issues must be addressed. That's why many adopt a service-driven approach—to modernize, compete, and succeed.

**An SOA is a software design and software architecture design pattern, based on discrete pieces of software, which provides application functionality as services to other applications.**

## **Make the change—transform**

Organizations in the transportation industry face a more competitive, dynamic, and demanding marketplace. The worldwide economy continues to struggle, forcing all kinds of travel and transportation organizations to seek new markets and revenues, and cost-efficiencies. Globalization creates opportunities, while introducing powerful and nimble competitors. Customers and travelers expect and demand greater choice and improved services. Governments impose more stringent safety and environmental regulations.

At the same time, technology change introduces greater complexities—systems age and new applications must be retrofitted to older platforms. Older applications are typically siloed and inflexible, making it difficult to connect them into a seamless supply chain environment. Maintenance and development costs often escalate. As a result, many organizations struggle to gain an end-to-end view of their customers, react quickly, and gain real cost and operational efficiencies.

Changing technology has created complexity that increases every year, as systems age and new applications have to be retrofitted to old platforms. Because old applications are siloed and inflexible, it is difficult to connect them into a seamless environment. Maintenance and development costs are high, as is the risk involved in making changes to existing systems. This results in a lack of an end-to-end customer view, slow reaction time, outdated methodologies, and inefficiency.

To survive and succeed in this challenging environment, transportation companies must transform into more agile and responsive organizations. Chief executives across the sector now recognize the need for fundamental change, and many are evaluating and making needed business and technology adjustments to effect vital transformation.

In addition to adopting new business process models and modernizing applications, transportation companies also benefit greatly by implementing an IT architecture that is focused on the rapid, efficient delivery of vital transportation-related services.

A service-oriented architecture (SOA) lays the foundation needed to succeed in today's fast-paced and competitive freight and logistics sector. Its approach helps enterprises modernize existing applications, deploy new ones, and gain a sustainable competitive edge. It also enables your organization to become agile so it can change strategies and have the business systems and processes in place to enable execution well ahead of the competition.

To fully appreciate the power of this approach, it may be helpful to examine the need for, and elements of, a true SOA in the transportation sector.

**By tightly coupling infrastructure and applications, SOA enables you to reduce processing costs while improving performance and overall quality of service.**

## Review technology issues

Organizations in the transportation segments face a number of serious challenges related to obsolete IT infrastructures.

Continued global economic uncertainties, a depressed U.S. dollar, and soaring fuel prices led transportation companies to implement strategies to support international business and lower the impact of fuel costs on their business. These companies have been working to secure existing customers and look for new ones while taking their assets out of service in an effort to maintain revenue and profitability.

Unfortunately, most transportation companies are restricted by dated processes, technologies, and practices. This creates inflexibility that limits future success.

As legacy systems age, they become more complex and expensive, requiring constant attention and custom retrofits that often lead to inflexible and overly complex infrastructures. Companies face greater risk as older systems grow increasingly inflexible and “legacy-skilled” IT professionals age and leave the workforce.

Older platforms and languages are increasingly more expensive and time-consuming to maintain and develop. Obsolete applications and methods contribute to slower market reaction times, and wasted time leads to lost opportunity and lower profits. When applications are separated into function- or business-oriented silos, companies cannot gain a true end-to-end view of customers or connect processes in a seamless transportation environment.

By modernizing applications—and deploying those systems in an architecture that is focused on delivering key services more quickly and efficiently—your organization can more effectively respond to changing market conditions.

## Understand the architectural elements

Companies in the transportation industry can become more flexible and customer-focused by deploying an SOA. It provides a superior approach to modernizing key systems in a modern transportation value chain. This approach makes assets and resources compatible across the industry. And transportation firms can leverage it to gain flexibility when implementing new technology, while reducing overall IT complexity. The SOA platform also enables companies to pay “by the drink” vs. time and materials.

SOA enables airlines, hotels, and transport providers to more effectively reuse existing applications, functionality, and data. Instead of software dictating how a company operates, SOA frees it to identify and pursue new business objectives. Because functionality is modified once in a centralized location, rather than across multiple product or business silos, changing business requirements can be addressed more quickly and effectively.

A transportation-oriented SOA should deliver a:

- Highly-reusable framework that can be adapted to transportation management, billing, operations, sales and marketing, customer management, and back-office systems
- Ready-to-use database, logging, security, web service management, messaging, and applications environments
- Rapid scalability of applications, adapters, and other major components
- Production environment supported and monitored 24x7
- Flexible test and integration environment that enables full-scale volume testing
- Sophisticated web service management and a high-speed service bus

**The HPE SOA solution met a major European airline's demanding time and budget requirements and delivered optimized functionality while measurably reducing the risk of this major business and IT transformation.**

To fully appreciate the power of this approach, it may help to examine more closely the key layers in a transportation-focused SOA.

## **Examine the infrastructure**

SOA places unique and hard-to-anticipate demands on the underlying IT infrastructure. As it evolves, web services themselves serve to request, negotiate, and allocate various resources needed by an application, and those activities naturally impact bandwidth, storage, load balancing, security, and other infrastructure aspects. By tightly coupling infrastructure and applications, SOA enables you to reduce processing costs while improving performance and overall quality of service.

### **Point solutions layer**

Point solutions represent hidden, dispersed, and unleveraged business value—in the form of data and business processes—that are typically locked away in vertical applications and accessible only through application-specific interfaces and hardwired integration points. By consolidating and updating applications, you can realize greater operational flexibility and accelerated time-to-market.

To identify excess capacity, redundancies, and opportunities for reuse, it's recommended that all packaged and proprietary software be analyzed. Rationalized applications can then be translated into standardized languages, integrated with web services, and leveraged across platforms and functions within the transportation enterprise.

In the airline segment, the point solution layer includes software systems to manage fares, reservations, and ticketing; passenger check-in; cargo processing; inventory management; flight and technical operations; aircraft maintenance; and outsourcing and alliance management. It also covers customer relationship management, finance, human resources, sales and marketing services, and more.

In the freight, logistics, and rail segment, point solutions handle quoting and pricing, routing, demand and capacity planning, fleet management, freight forwarding, pickup and delivery, claims management, and warehouse and service center management. It might also include international shipping, billing, customer and vendor collaboration, purchasing, financials, and more.

In the travel and hospitality segment, point solutions might include reservations, property descriptions, rate, inventory, availability data, front desk activities, and customer profiles including room temperature, mini-bar inventory, pillow type, and other room preferences. They also cover inventory and yield management, targeted marketing, customer loyalty programs, customer relationship management, brand management, supply chain management, staffing and human resources, sales and marketing, financial management, and more.

### **Enterprise integration layer**

This layer serves to reveal, correlate, and leverage the business value contained in point solutions, enabling those resources to be presented and leveraged across the transportation business.

### **Business process layer**

The functions in this layer enhance and control the business value exposed by the integration layer and enable you to deliver those resources throughout the business. These functions may include business processes, data warehouses, data marts, enterprise operational data stores, and business rules. By separating business process functions from the application code, the service-oriented approach gives your organization greater operational and strategic flexibility.

### **Presentation layer**

SOA also enables a more consistent presentation interface, offering greater control and customization across various applications and business units.

**By implementing SOA solutions, companies in every transportation segment are realizing faster time-to-market performance, greater cost-efficiencies, and significantly lower implementation risks.**

Because business functions, such as guest check-in or passenger ticketing, are isolated from the code, hotels and airlines can make changes or update processes without revising code in multiple systems throughout the company. A single interface—such as an attended ticket counter or a self-check ticketing kiosk—leverages the same process for multiple systems, eliminating the need for redundant programming of the same function.

A comprehensive SOA approach also addresses governance, security, application modernization, and other essential architectural elements.

## **Take a transport-oriented SOA approach**

When transportation enterprises take a siloed approach to addressing issues—such as working with an IT provider for a cloud solution and an industry solution provider for passenger services—firms can address only a small component of their business at a time. This creates extra work and increases costs.

A phased approach is recommended to guide an SOA transformation. It begins with a careful review of existing IT infrastructure, applications, and business alignment, and leverages an enhanced version of the traditional SOA maturity model. Recognize that SOA requires discipline, and an organization must address cultural, organizational, and technology changes as part of any modernization or transformation effort.

A flexible SOA platform should leverage and integrate with security solutions; next-generation data centers, products, and services; information management platform; and mobility features. It should also take cloud capabilities into consideration and enable pay-per-use such as—Platform as a Service, Software as a Service, and Infrastructure as a Service.

## **Read about SOA in the real world**

When a major European airline company made the strategic decision to migrate its vast operational activities to a common IT platform, this respected international air services provider knew it would require significant changes in its technology infrastructure.

The company selected Hewlett Packard Enterprise (HPE) to address its needs with a market-proven, cost-efficient SOA solution. This SOA approach established a common middleware platform to support the integration of current and future operational applications and business partners. The solution employs reusable HPE SOA components and expertise, reducing the time and expense of this crucial transformation.

By enabling the airline to quickly and easily install or remove any in-house or external provider solution, this SOA gives the company optimal independence and flexibility.

The HPE solution met the airline's demanding time and budget requirements and delivered optimized functionality while measurably reducing the risk of this major business and IT transformation.

## **Learn how it affects you**

Organizations in virtually every segment of the transportation industry can benefit by evolving toward a more agile, service-driven business and IT structure.

### **Air services**

Airlines face an ongoing challenge to deliver new products and profitable revenue. They are looking for ways to rapidly develop and deploy applications that enable them to differentiate themselves in the marketplace, innovate and create new revenue streams that satisfy the always-connected traveler, and drive more revenue per seat.

**By tightly coupling infrastructure and applications, SOA enables you to reduce processing costs while improving performance and overall quality of service.**

SOA enables airlines to optimize existing IT assets and resources while leveraging new outsourcing utility computing options to build sustainable competitive advantages. By seeking the ideal mix of transformation, investment, and partnering, airlines can be in position to succeed in a changed air services marketplace.

### **Freight, logistics, and rail**

Freight, logistics, and rail service providers face a faster, more global, and more competitive industry. Higher fuel prices and other pressures are forcing them to adopt more agile and economic strategies.

Many companies have worked to secure existing customers and find new accounts, while taking low-utility assets out of service in an effort to maintain revenue and profitability. Unfortunately, many of them struggle with obsolete processes, technologies, and practices.

In many cases, SOA can be the solution. It lays the foundation needed to succeed in today's fast-paced and competitive freight and logistics sector. A transport-oriented SOA can help enterprises modernize existing applications, deploy new solutions, and gain a clear competitive edge. It creates the agility needed to shift systems and strategies, and stay ahead of the competition.

### **Travel and hospitality**

Hotels, cruise lines, and car rental firms face significant challenges and very real opportunities. Ongoing economic uncertainty puts cost and revenue pressures on hospitality firms of all kinds. Guests are more connected and demanding than ever. Competition is tough and global. Many firms also struggle with costly and obsolete legacy systems.

Not surprisingly, many hospitality firms now seek innovative ways to improve revenue performance, streamline operations, and strengthen guest relationships during stays and rentals and after customers return home.

By modernizing IT infrastructures—including the introduction of fully integrated SOAs—companies in the hospitality sector can deliver more efficient services with more satisfying guest interactions. At the same time, a service-based infrastructure enables hotels and other hospitality firms to measurably reduce costs, improve internal productivity, build brand awareness and loyalty, and open promising long-term sales opportunities.

## **Gain these SOA benefits**

Your organization can leverage a service-oriented approach to:

- Improve customer and traveler service, satisfaction, and loyalty
- Consolidate and streamline operations and measurably reduce operating costs
- Enhance, extend, and deliver on your brand promise
- Increase organizational flexibility
- Respond more quickly to changing market conditions
- Enable secure, real-time information exchange with partners
- Acquire and replace channels and suppliers quickly and efficiently
- Identify and open new long-term revenue streams
- Free up funds for strategic investments
- Realize incremental return on investment

## **Make the change**

Globalization, intensified competition, and the need for more responsive and cost-efficient operations are driving fundamental change in the transportation industry. Forward-looking firms—including airlines, hotels, and transportation service providers—now recognize the need to transform into more agile and responsive organizations.

To create a more agile transportation enterprise, enhance service quality, and drive end-to-end efficiencies, service providers are now investigating and adopting service-oriented IT infrastructures. By implementing SOA solutions, companies in every transportation segment are realizing faster time-to-market performance, greater cost-efficiencies, and significantly lower implementation risks.

SOA is the foundation on which you can build a successful IT and business transformation. By leveraging a market-proven solution, you can be in position to succeed in a changing transportation marketplace.

Learn more at  
[hp.com/go/freightandlogistics](http://hp.com/go/freightandlogistics)



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