

## View Point



### Enabling Collaboration in Automotive Retailing

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#### Abstract

This paper provides a contextual layout of the auto-retailing segment in North America and Europe, outlining the challenges and the business impact posed by the current Information Technology (IT) landscape. It highlights Infosys' approach to the business problem, suggests steps to improve efficiency and effectiveness, and offers recommendations to Original Equipment Manufacturers (OEMs) and Dealer Service Providers (DSPs).

## Executive Summary

Auto retailing in North America and Europe has its characteristic idiosyncrasies – in the relationship between dealers and OEMs, the size of the business and the IT landscape. However, the challenges posed by the current IT landscape are common to both regions. Multiple systems and interfaces built over different technologies with little or no integration capabilities characterize the current IT landscape in auto retailing. In addition, OEMs require different data exchange formats and requirements, adding complexity to the IT ecosystem. The result is reduced productivity, high application maintenance cost, increased errors in transactions and poor visibility of inventory and demand. At the same time, it is not pragmatic to suggest that OEMs and dealers adopt common standards or revamp their IT infrastructure to enable better integration and visibility.

Infosys' Auto Retail Solution addresses the needs of all stakeholders in the auto-retailing arena. It leverages Web Services and a host of other technologies, along with STAR standards. The Infosys approach realizes the limitations that need to be addressed, which include the following:

- Due to substantial complexity with communication methodologies across OEM operations, adopting a single standard for communication could be prohibitive from a cost and process perspective
- At the same time, DSPs also would not like to stake big monies in redesigning their Dealer Management Systems (DMS) and provide point-to-point interfaces for each OEM

The Infosys solution improves the auto retailing business operations by providing bi-directional integration: between OEM and dealers, as well as among dealers (dealer to dealer, including integration to Head Office), thus improving the visibility of demand and supply.

## The current state of dealerships in USA and Europe

Consolidation in the US dealer community has led to the formation of larger dealer groups. In Europe, the market is fragmented. However, changes to Block Exemption Rules (BER) offer further opportunities for consolidation in the European market, which leads to the formation of larger groups.

Auto retailing business structure significantly differs between North America and Europe. The sizes of the dealerships, the relationship between dealers and OEMs and the IT landscape have their peculiarities between these two parts of the world. Table 1 compares the peculiarities between these two geographies:

**Table 1:** Differences between the auto retailing business structure in North America and Europe

Parameters	North America	Europe
Relationship Structure	In USA, dealerships are powerful organized bodies and exert considerable influence on OEMs' retailing policy and decisions	OEMs influence dealers and exert high levels of control over them. This was, in a way, supported by BER in Europe. However, recent changes to the rule provide more authority to the retail community including dealers, wholesalers, importers and independent repair shops. Changes to the BER like enabling multibrand dealerships and opening up of borders across European Union (EU) provide dealers more independence to manage their businesses
Size of Dealerships	Large chains like AutoNation, Sonic	Medium to small, fragmented and family owned
Ownership Structure	US federal laws prohibit OEMs from owning and operating dealerships	Many OEMs have established captive dealership networks
IT System Landscape (DMS vendors)	Two IT system providers dominate with over 80% of the market share in North America	Many small and niche DSPs – primarily because of language and cultural differences in European countries

## Current IT landscape in North America and Europe

Multitude of systems with different technologies and no proper integration capabilities are some of the key challenges that OEMs and dealers face. In addition, OEMs require different data exchange formats and requirements adding complexity to the IT ecosystem.

However, the challenges posed by the current IT landscape are common to both North America and Europe. Primarily, the challenges are because of multitude of systems built on varying technologies with little or no integration between these systems. Moreover, OEMs that require different data exchange formats with batch transactions add further complexity to the current IT landscape. The challenges for OEMs and dealers can be summarized as follows:

- **Multitude of applications required** –DMS, OEM-provided Dealer Communication Systems (DCS), Lead Management Systems, Finance/ Insurance Systems and Customer Relationship Management (CRM) and dealer websites are some applications that are essential to manage their operations. In addition, there are different applications inside OEMs enterprise that support different functions in auto retailing for different geographies.
- **Varying technologies:** Many of these systems are on legacy technologies, which offer several challenges in maintaining the systems. Scalability, capability to provide interfaces with other systems and availability of people who are knowledgeable in different legacy software are some of the critical issues in maintaining the systems.
- **Little or no integration:** These different systems are not inter-connected. For example, lack of integration between DMS and DCS is a common problem in auto retailing. This requires dealer personnel to key-in spare parts receipt in the DCS and to repeat this in the DMS to manage the inventories.
- **Different data exchange formats:** Almost all OEMs have their own data exchange formats defined in order to communicate with dealers. Both OEMs and dealers are yet to completely adopt the standards in data exchange. This is particularly challenging for dealerships who deal with multiple brands or OEMs. For example, a multi-brand dealer might have to use a different DCS to communicate with different OEMs in addition to managing a different DMS.
- **Batch transactions:** Many of the current systems that dealers and OEMs use support offline or batch transactions only. This is inadequate in current business context where OEMs and dealers try to become more responsive.

The current IT landscape presents challenges for DMS vendors (DSPs):

- **Different interface requirements:** DSPs have to maintain different interface requirements for different OEM, due to lack of adoption of standards.
- **Disparate applications even from the same DSP:** Even when dealers use different solutions from the same DSP, many times these solutions are not interconnected, as many DSPs grow by acquisition. (Consider the recent acquisitions: DCS Quantum by SAP, EDS-ARG by ADP and Incadea by R&R)

In short, the systems are too many without proper integration infrastructure, whereas the current business context demands integration.

## Analysis

Disparate IT systems add complexity and costs to OEMs, dealers and Dealer Service Providers. This results in reduced productivity, increased errors in transactions and poor visibility into inventory and demand, thereby increasing push sales.

For OEMs and dealers, these factors in current IT landscape result in lack of visibility and reduced efficiency in auto retailing operations.

- **Visibility:** Multitude of systems built on several technologies with little or no integration hamper visibility into OEM and dealership operations costing millions of dollars. Table 2 analyzes the losses because of lack of visibility.

Table 2: Estimate of loss due to lack of supply chain visibility

Parameter	Value	Remarks
Average discount offered per vehicle by an OEM	USD 1600	For example, a vehicle inquiry may result in a dealer offering 'near match' to the configuration required by a customer, without knowing that the exact specification is available in the OEMs parking lot. This compounds the problem, as the other vehicle that is in the OEMs parking lot will lie in inventory and eventually might need push-sales
Assume the number of vehicles sold per year in US by the OEM	1 million	
Number of vehicles for which such discount is offered because of lack of better visibility	10,000	Assuming 1% of the total sales-conservative estimate
Total cost in discounts/ year in one region (country)	USD 16 Millions	This is just one of the non-value added business process and there are many more!

- Reduced Efficiency:** OEMs and dealers lose productivity in their operations because of the disparity and incompatibility of the systems. As an example, these disparate systems make dealers key in Vehicle Identification Numbers in their DMS even though the OEM has the VIN (Vehicle Identification Number) associated with the dealer. Thus, dealerships personnel spend their valuable time more with systems than with customers, resulting in loss of productive hours. Further, productivity is lost because of possibilities of errors creeping into the business transactions. For example, there are chances of errors when duplicate entries are made at different systems, leading to data inconsistencies and costly business decisions. Similarly, there are possibilities of errors because of offline or asynchronous communication.

For DSPs, different interface requirements increase the maintenance complexity and disparate applications inhibit from providing a unified face to their customers.

- Maintenance Complexity:** As discussed before, different OEMs require different data exchange formats with their dealers. Even for the same OEM, the data exchange formats might differ for different brands and geographies. This presents challenges to DSPs to maintain bespoke, OEM-specific interfaces, thus increasing the overall cost of maintenance. In addition to this, DSPs also spend huge money to proactively enable their system to OEM-specific interfaces to obtain endorsements from the OEMs.

Therefore, it is crucial to:

- Increase the supply chain visibility and efficiency in auto retailing by integrating these disparate systems
- Reduce point-to-point interfaces to reduce maintenance complexity and cost

## The Infosys Approach

Infosys approaches the issue by enhancing the supply and demand chain visibility in auto retailing at the same time realizing the current constraints and limitations. The visibility is enhanced by integrating these different systems.

Our approach addresses the constraints in the auto-retailing arena:

- OEMs and dealers might not be able to adopt standards in communication, uniformly at the same time:
  - Due to substantial complexity with communication methodologies across OEM operations, adopting a single standard for communication could be prohibitive from a cost and process perspective
- At the same time, DSPs also would not like to bet huge amount of money in redesigning their DMS and provide point-to-point interfaces for each of the OEMs.
- OEMs and dealers would prefer to retain and leverage their current IT infrastructure rather than revamp their entire IT systems to enable integration.

Infosys facilitates communication by seamlessly integrating the current IT systems of OEMs and dealers using technologies like Web Services, XML and STAR standards. Integration enhances visibility and collaboration with different business models (like checking inventory in Final Assembly parking lot of OEMs) thus resulting in increased revenues and profits (Figure1).

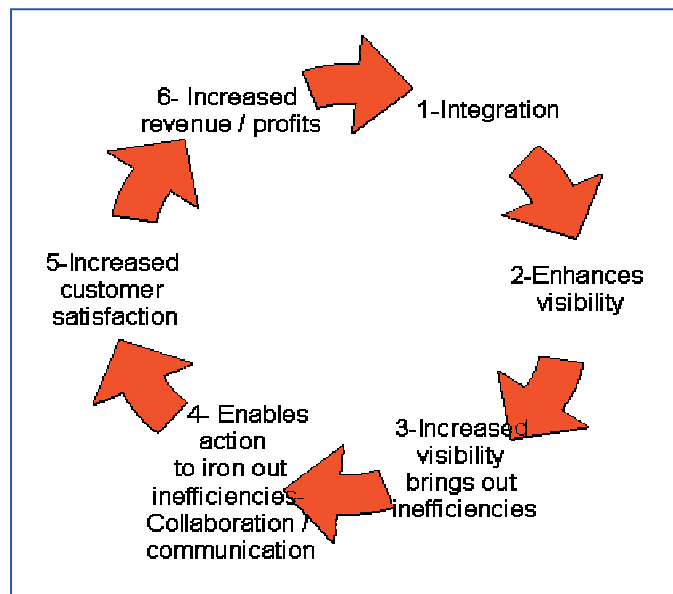


Figure 1 Integration benefit cycle

Further, improved communication enhances the quality and timeliness of communication as:

1. Improving quality integrates the IT system of dealers and OEMs seamlessly to reduce errors and inconsistencies arising from duplicate entries or offline/ asynchronous communication.
2. Reducing batch processing of OEM and dealer systems would result in near-real-time communication, which is essential for business. For example, a dealership might want to check the availability of spare parts with its regional distributor. Customer satisfaction will be high if the dealer can revert immediately instead of a delay.

OEMs and dealers who wish to enhance communication must focus on the quality of communication. Without seamless and robust integration of different systems between OEMs and dealers, it would be sub-optimal to reduce the batch processing of back-end systems. For example, the effort to process parts orders online would not provide the necessary results when the orders have to hop through sub-dealers, dealers, central warehouses and factory planning systems with multiple manual re-entries. Therefore, seamless integration will be the first step towards improving communication.

## The Infosys Solution

Infosys' solution is built on these business fundamentals:

- Enable integration by leveraging the current IT systems as far as possible
- Reduce point-to-point, connectivity and communication
- Provide OEMs and dealers the data in their own format and does not mandates them to adopt any standards

## Web Services-enabled integration makes use of the current IT systems.

The Infosys solution enables bi-directional integration:

- a. Edge to center (OEM – dealer) integration
- b. Integration around circumference (dealer-dealer including integration to Head office) (Figure 2)

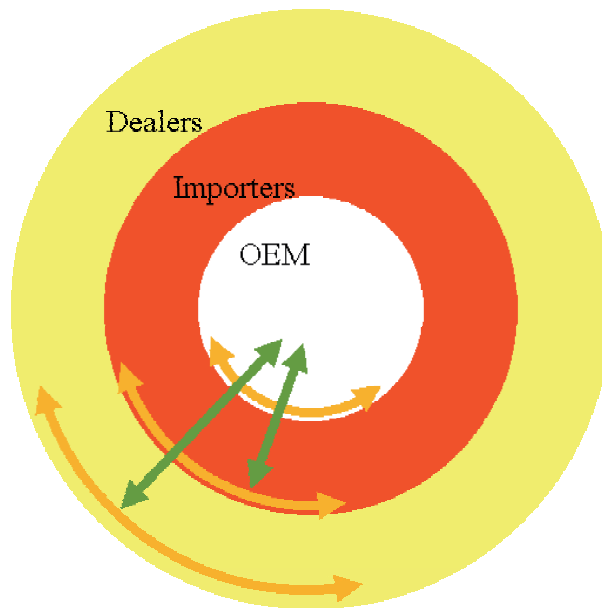


Figure 2 Integration points: OEM to Dealer and between dealers

Considering the disparity of IT applications and the large number of stakeholders involved (e.g. dealers and multiple OEMs), the solution adopts a Web Services-based service-oriented architecture. Web Services are self-contained business applications that operate over the Internet. Due to the loosely coupled nature of Web Services, the dealers need not have hardwired connections with OEM systems. This helps the dealer community to make fast business connections with new OEMs, without going through the conventional pattern of making largescale changes to the system.

Web Services enable dealers to isolate the business logic from integration in the case of DMSs. Most conventional integration solutions embed part of the business logic in the integration layer that requires considerable efforts in making modifications. Web services address the key requirements of the scenario listed above. Based on open standards like XML and SOAP, they define a means by which the systems of the dealers and their partners can be published, discovered and invoked.

### *Transformation engine reduces point-to-point connectivity*

The solution leverages STAR standards (wherever required/ available) and provides a data transformation service that reduces the need for point-to-point connectivity between systems. For instance, there are three dealers, who deal with three different OEMs. In the current scheme of things, the number of communication interfaces required will be nine. The solution acting as an integration layer will need three communication interfaces with the three dealers and another three with the OEMs, thereby reducing the point-to-point interfaces from nine to six. In general, the solution reduces the  $MXN$  communication interfaces to  $M+N$ .

### *Transformation and transportation engines provide data in the format needed by OEMs and dealers*

The transformation engine in the solution uses two-step transformation process and provides the data in the format specified by OEMs. Thus, it enables OEMs to retain their own data exchange and layout requirements.

In addition, the solution provides transportation engine that supports different transport protocols like HTTP and MQ to transport the data to its destination.

Apart from integration, transformation and transportation engines, the solution provides the elements that are essential for business transactions like verification of security credentials, prevention of malicious or repeated attacks and balancing the load for scalability. Infosys solution, by adopting Web Services along with transformation and transportation engine, can be viewed as a methodology to design seamless and flexible interaction across applications within and across organizational boundaries.

## Conclusion

The automotive industry is plagued with high order to delivery time and high inventories with razor thin margins for both OEMs and dealers. In addition, environmental conditions like regulations (like Block Exemption Regulation in Europe) and changing customer preferences drive the need for different business models in auto retailing. These factors drive the need for increased collaboration between OEMs and dealers and among dealers. Infosys solution, developed specifically for auto retailing, enables collaboration by integrating disparate IT systems seamlessly.

### About the Authors:

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