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White Paper

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Europe auto: Need for OEM-dealer integration accelerated by changes in Block Exemption Regulation

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Abstract:

Changes to the Block Exemption Regulation (BER) are meant to increase the competitiveness of the automobile retail industry in Europe. The key elements of change are relating to allowing either selective or exclusive distribution arrangements and multi branding, disengaging dealerships and service, providing greater role for intermediaries and broader definition of original spare parts. The changes bring in more competition among Vehicle Manufacturers (VMs) and dealers. In order to take advantage of the changes, VMs and dealers have to adopt new business processes and technologies. Improved communication with dealers is a necessity for VMs to enhance visibility into dealer operations. Better visibility into dealer operations improves operational efficiency providing better customer satisfaction. Needless to say, better customer satisfaction results in increasing profitability and loyalty. Improved communication implies improving quality and timeliness of communication. We suggest improving the quality of communication first, before attempting to improve the timeliness of communication. Integration of various systems between VM and dealers is a key element for improving quality of communication. The paper highlights the role of open IT standards like web services in providing the required integration framework for VM and dealers.

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The relationship structure between dealers and OEM differs widely across globe.

Dealerships are important channels for VMs to sell their vehicles. Despite the growth of internet based B2C model of sales, dealers form an important interface between customers on one hand and VMs on the other. Dealers are different and separate business entities, yet they are often considered as “departments” for VM. The relationship structure of dealers with VM differs widely across the globe.

In USA, dealerships are powerful organized bodies and exert considerable influence on VM’s retailing policy and decisions. *America has, in effect, a two party system with a powerful, organized dealer body that has significant influence on legislative regulations and OEMs retailing decisions* [3].

In Europe, VMs influence the dealers and exert high levels of control over them. This was, in a way, influenced by Block Exemption Regulation (BER) in Europe. BER exempted the motor vehicle sector from common competition laws. This means that VMs can:

- Limit the number of dealerships in a territory
- Restrict the dealerships from selling other brands
- Define the territory within which dealers sell their cars
- Impose restrictions that the dealers have to undertake after sales service and repairs
- Impose restrictions on dealers to whom they sell their vehicles including conditions such as they cannot sell it to other re-sellers etc.

In Asia, specifically in India, China and Thailand, car buyers are mostly first time customers and they see dealership salespersons as consultants and guides who can advise and guide them. Thus the relationship is primarily driven by the influence that a dealer makes in the local market.

Changing European market:

The market conditions are changing in Europe. This is because of the changes in the BER which are partially in effect from Oct 2003.

The key changes in BER that bring about increased competitiveness are:

- VMs have to choose either exclusive or selective distribution system. (In selective distribution network, dealers can sell cars to any geography; can set up subsidiaries anywhere in EU, but no reseller / third-party sales are allowed. Whereas in an exclusive system; dealer gets exclusive geographical territory and dealer can sell to any re-seller / third party.) Studies suggest that most of the auto manufacturers are likely to choose selective distribution system [1].
- Multi brand dealerships are possible. Manufacturers cannot prevent dealers from selling more than one brands in the same dealership. The only condition that VM can put forth is that they have different areas within the showroom for different brands. Dealers have to decide if they want to switch brands or add brands to their portfolio.
- There can be independent repair shops that are brand neutral. VM cannot impose their dealers to have repair shops.
- VMs must provide access to all technical information, tools, equipments, training etc to these independent repairers. This means that customers have a choice of place where they can repair their vehicle. VMs cannot force authorized repairers to purchase spare parts only from them. They cannot also restrict the repairers from using spare parts from vendors that match the quality standard of their (VMs) original spare parts.
- A greater role is given to intermediaries to enable more competition and free movement of vehicles across borders. The former rule that prevented intermediaries from purchasing more than 10% of the dealer’s total sales volume is removed.

As a result, VMs fear losing control over dealerships. Some of the factors leading to the fear are:

- VMs have to face the heat of competition when dealers go in for multi brand dealerships and set up subsidiaries in other geographies.
- The entry of independent repairers will take away revenues from after sales service which is traditionally a major source of revenue for dealers. As per PricewaterhouseCooper's estimate, the gross margin for dealers in service labor is around 60% and 40% in spare parts [2]. VMs may take a hit in spare parts revenue as there can be matching quality spare parts from copy manufacturers and other tier-1 manufacturers, who can come up with equivalent quality but far cheaper spare parts.
- Some VMs may face a short-term jerk in revenues from sale of cars as prices tend to converge. This would be the result of increasing cross border trades. VMs should decide on whom (dealers) to take on-board their network and accordingly design the selection criteria. The selection criteria cannot be very tough and at the same time, should filter out inefficient dealerships.
- VMs have to scale up their distribution network to provide technical information, tools, equipments etc to these independent repairers.

Small dealership fear take over by large dealers. For example, RegVardy has aggressive plans to grow to more than 100+ dealerships through acquisitions in the near future. The strategy is to provide competitive prices to customers through advantages of scale. Other dealerships like Inchcape, Pendragon also plan to follow similar path.

So, how to tackle this situation?

Improving communication between VM and dealers is paramount in taking advantage of the new market scenario in Europe. Improving communication has two aspects- 1) Improving quality 2) Improving timeliness.

Improving quality would result in reducing errors and inconsistencies. For example, there is a chance of error because of duplicating entries at various places, e.g. manual typing of VIN number at the point of dispatch and at the point of receipt in dealerships. Similarly there are possibilities of errors on account of offline or asynchronous communication. For example, consider a scenario in which a dealership uses ftp to upload order data and the VM 'scans' the order data at periodic intervals. In this scenario, there is a chance of missing orders or considering orders more than once and so on.

Improving timeliness would result in near-real time communication that is essential for business. For example, a dealership might want to check the availability of spare parts with its regional distributor. Customer satisfaction can be high if this could be done instantly instead of asking the customer to come next day. Another instance would be accommodating changes to configuration even at later stage of order processing. This has become a competitive necessity as some VMs are already doing this. Moreover, one cannot expect customers to suggest changes well in advance. The primary drivers, for next generation VM-dealer IT integration, are:

1. Presence of legacy systems
2. Scalability of existing systems
3. Maintainability of current systems
4. Enable smaller dealers to be part of the network
5. Need for near real-time information exchange

But there are technical challenges to enhance communication between VMs and dealers as traditionally the Information Technology systems that are available with VMs are legacy systems and are built with limited functional scalability. Among dealers, the situation is worse, with many small dealers still using homegrown software or no software for managing their dealerships. In case of large dealerships different outlets use different dealer management systems. It is imperative that business systems of VMs and dealers be integrated in order to have robust and real-time communication. At the same time, VMs and dealers do not want to replace their existing systems for newer technology systems, as this would mean huge investments for them.

As a first step, it is important to focus on quality of communication because with islands of disparate systems with VMs and dealers, it would be sub-optimal to achieve real time communication. So, seamless integration of different systems between VMs and dealers is the first step towards improving quality of communication. Reducing batch processing is a key

element in increasing timeliness of communication. This paper focuses on the improving quality of communication and how IT could help in achieving the same.

In order to improve quality of communication, it is not necessary to revamp all the current systems that support the business processes of VMs and dealers. Some of the important aspects to bear in mind when doing this are:

- Retainability- retaining current systems as far as possible
- Scalability- it should not be difficult to include new dealers
- Flexibility- should support different types of data requirements from different dealers' systems / VMs
- Lock-in avoidance- VMs should not be dependant on one or two Dealer Management Systems (DMS). VMs should be able to handle data from different DMS systems that dealer might have.

Apart from the above other parameters like enabling cross brand integration and ease of maintenance, security etc. are also important.

Technology like Web services can help in integrating different systems of VMs and dealers. Web services are self-contained business applications that operate over the Internet. Web services can be seen as a way to design seamless and flexible interaction across applications within and across firm boundaries. Web services can be published, located and invoked by other applications over the Internet. They are based on strict standard specifications to work together and with other similar kinds of applications. This adherence to strict standards enables applications in one business to inter-operate easily with other businesses. In addition, it allows interaction between applications that are across disparate platforms and those running on legacy systems. Therefore, Web services offer a company the capability of conducting business electronically with potential business partners in multiple ways at reasonable cost.

The main standards are:

- XML Schema for language independent data types,
- Simple Object Access Protocol (SOAP) for vendor-neutral XML based messaging
- Web services Description Language (WSDL) for implementation independent XML based description of a business function implementation, and
- Universal Description, Discovery and Integration (UDDI) for publishing and discovering business functions.

Technically, Web services involve leveraging at least one of the standards such as SOAP, WSDL or UDDI. The W3C Web services Architecture working group [38] came up with the generic architecture for Web services shown in Figure 1. The architecture stack defines the roles and

responsibilities of different architectural components required for implementing Web services and the possible standards for implementing the different software components required for these roles.

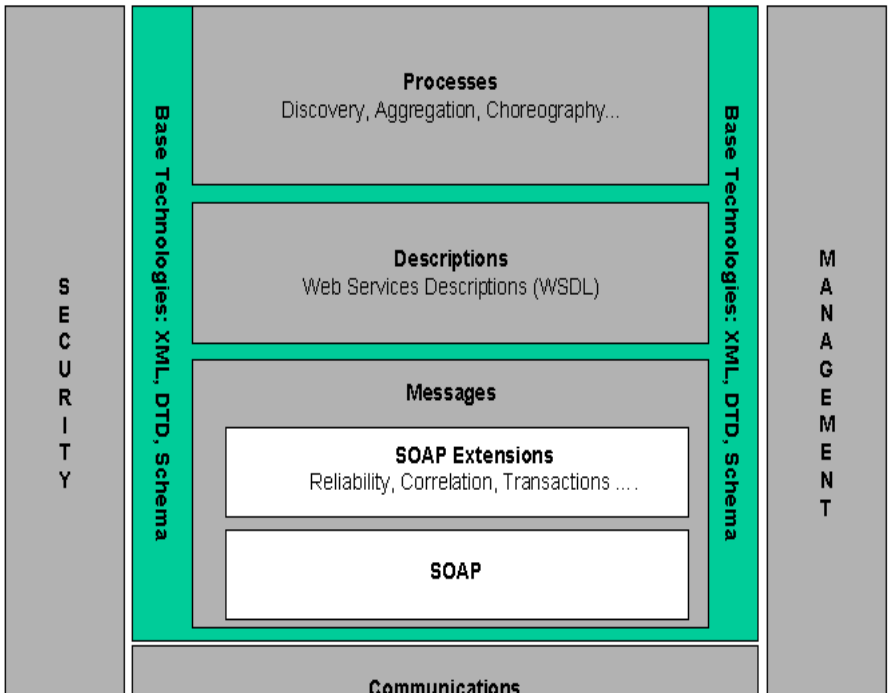

Figure 1: Web Services Architecture

Source: W3C Web services Architecture Working Group

Web services allow the development of loosely coupled solutions. The independent computing resources expose an interface, which can be accessed over the network. For example, a firm may expose a particular application as a service, which would allow the firm's partners to access the particular service. This is made possible by standards which define how Web services are described, discovered, and invoked. Another key factor in favor of Web services is the universal availability of Web services adapters from different IT vendors. Today Web services are supported by key platform vendors such as Microsoft, IBM, Sun etc. SOAP based adaptors are available for a wide range of technologies including Mainframes, C++ applications, VN applications to .NET and J2EE applications.

Proposed Architecture

We first describe a typical DMS to OEM interaction scenario and describe the proposed architecture to address this scenario. Post BER let us assume that Dealer A wants to deal with multiple OEMs. This would involve the dealer's systems interacting with the systems of multiple OEM systems. The key requirements of the IT architecture supporting a post BER scenario for a dealer are:

- Ability to integrate smoothly with other multiple OEMs
- Ability to make quick modifications to DMSs to facilitate faster integration
- Ability to reuse most existing IT implementations

Given the disparate nature of the scenario and the number of stakeholders involved (e.g. dealer and multiple OEMs), a Web services based service-oriented architecture would be the ideal solution to the problem. Due to the loosely coupled-nature of Web services, the dealers need not have hardwired connections with OEM systems. This would not only address the current needs of the dealer, but would also address the future needs when the dealer may be needed to make fast business connections with new OEMs without going through the conventional pattern of making large scale changes to the system. Web services would enable the 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 thereby requiring 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. A Web services based Service Oriented Architecture with multiple tiers for the dealer's system is shown in Figure 2.

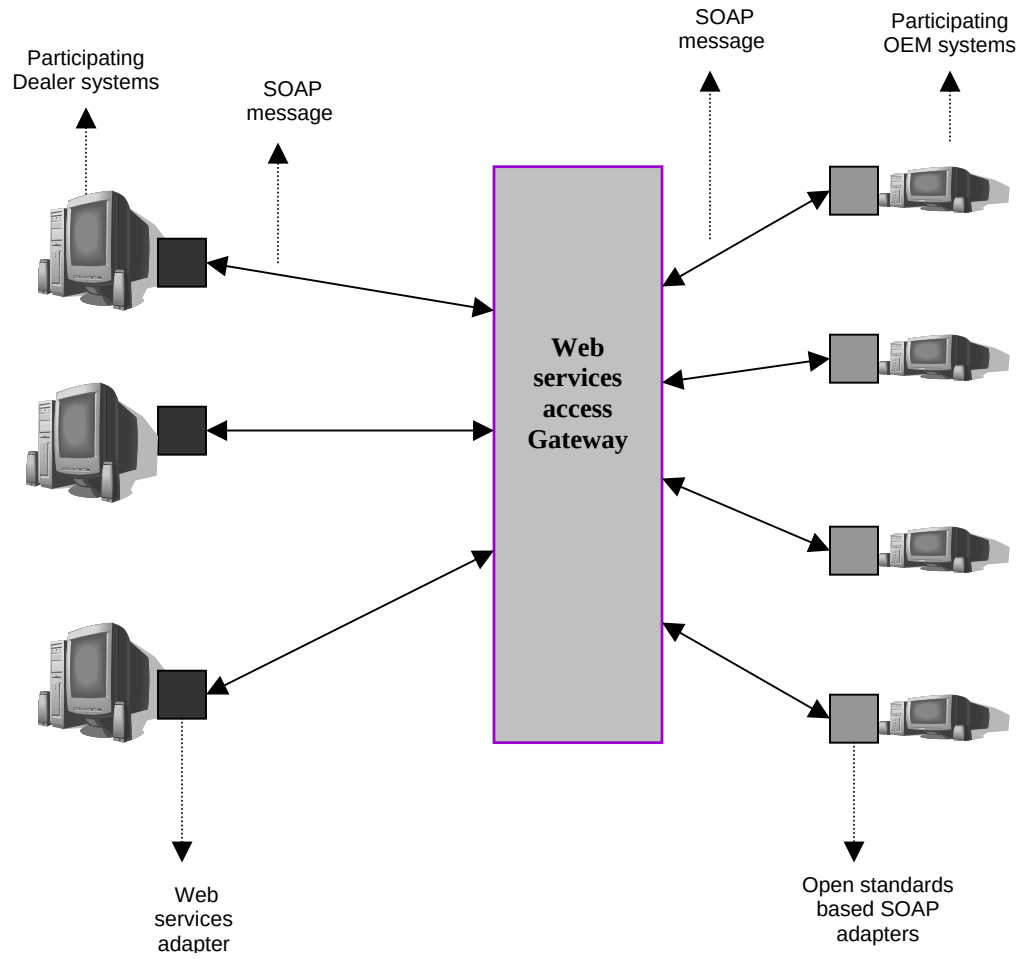

Figure 2: Multi-tiered Solution Architecture using Web Services

The architecture comprises of two main components; the *Web service gateway* (located at the end of the OEM) and a *Web services adapter* (located at the end of the dealer). The OEM applications providing business functions take part as services via endpoints communicating with these layers. The service gateway is the entry point to any business functionality within the OEM. Hence, the key functions related to security, and customer identification are performed at this layer. The Web services gateway performs the following key functionalities:

(1) Security Credentials Verification: The gateway accepts standard credentials from the service requestor (DMSs). If the dealer wants to access a particular Web service on offer (say *Order Management*) the request is passed on as a SOAP message across the service gateway. The validity of the request is checked based on the privileges and validated for the login name and password. This is the first level check performed by the service gateway layer by deciphering the header of any incoming SOAP message.

(2) Prevention from Malicious/Repeated Attacks: Due to the ease of availability of crucial functionalities as services, there is an increased possibility of repeated or malicious invocations of these services. The service gateway performs the function of SOAP content inspection enabling it to detect repeated attacks or malicious content sent as part of SOAP requests.

(3) Protocol Translation: Though in majority of the cases the external protocol for carrying out the SOAP messages is the HTTP protocol, it is not the preferred means for providing reliability and guaranteed delivery. To enable this the service gateway provides the facility to convert external SOAP requests over HTTP to internal SOAP requests over alternative protocols like JMS or MQ series that provide the required additional reliability. On the return path, the service response is converted back to the original HTTP protocol.

(4) Scalability and Callback: The service gateway also provides the required functionalities to provide scalability for Web services. For the purpose, load balancing and fail over mechanisms are provided by usage of the reverse proxy architecture at this layer. This enables the functionality of a single point access gateway for all the services. The component will also be required to provide a callback service for invocation of any specific service for an external consumer.

(5) SOAP Adapters: These are the adapters which provide the required connections to the proprietary OEM applications.

Workings of the proposed architecture

Consider a scenario, where a dealer wants to place an order for X units of cars with OEM 1. When a customer dealer makes the order for the item, the transaction would affect the DMS processes such as *CRM, accounting* as well as *promotions* (if there are any promotions on offer). The Web services client at the end of the dealer provides the interoperability layer.

Step-1: The dealer sends a request to the Web services access gateway.

Step-2: The request is verified at the service gateway and is transmitted to the appropriate participating OEM systems

Step-3: The participating OEM system sends back the response (availability/non-availability of X units of cars) to the Web services access gateway layer.

Step-4: The Web services access gateway layer sending this response to the respective participating DMS. In the above scenario, the Web services access gateway layer acts as a key intermediary, redirecting the queries from various applications/service to and from the DMS and OEM systems. On implementing the Web services based SOA, the dealer acts as the service consumer using services offered by the OEM systems, which are self-contained, self-describing and modular.

Conclusion

Managing for competitive advantage in the post-BER environment means that managers involved with ICT investment decisions must pay attention as to how they shall manage the dealer system interactions with OEM systems. Hence dealers and OEMs must be prepared to manage this scenario. This is imperative to maximize customer retention and remain competitive in the future. Web services based SOA shows promise in enabling integration among multiple DMS and OEM systems at reduced cost by leveraging existing investment in legacy systems and thereby increased efficiency for these enterprises. On the other hand, it also increases flexibility by offering the possibility of creating flexible new business processes from existing infrastructure. To that end, we have outlined a reference architecture which leverages Web services and handles all the functionalities as desired for the DMS and OEM systems integration. This architecture enables a true flexible integration between the internal systems of the dealer with those of the OEM systems. Further, this enables existing legacy applications of the OEMs to take part in the overall business architecture. Also dealers can take part in two-way real-time communication with VMs, leading to more real-time and demand driven information exchange between VMs and dealers.

Integration solutions from EAI vendors involve large initial investments. Moreover the EAI products are not very flexible, do not fully support incremental investments and are of proprietary nature. Moreover it is not easy to work around with EAI systems while integrating with IT systems of different partners with heterogeneous systems. All the above problems need to be addressed while implementing a Web services based solution. This is because the solution should be able to interact with various systems, should be flexible, should support incremental investments and should be able to interact with the systems of the dealers' partners. Web services address most the problems mentioned above. Web services would allow the dealer and OEMs to protect existing IT investments and make incremental investments over the existing systems.

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