



Internet Parts Ordering Industry Case Study

*Case Study Featuring a Collaborative IPO Implementation
O'Reilly Auto Parts and Four Seasons*

September 2006
By Joseph Register

Sponsored By

AAIA® Automotive Aftermarket
Industry Association

Objectives

The Internet Parts Ordering (IPO) Early Adopter program was established by the Automotive Aftermarket Industry Association (AAIA) to encourage the widespread adoption of the IPO standard. This initiative provides case studies of two pairs of Aftermarket trading partners as they plan and execute their IPO integration strategy.

Prescient Technologies was retained to document their process through the adoption process, providing a roadmap for other companies to following as they plan their own IPO implementation strategies. O'Reilly Auto Parts and Four Seasons were the first companies to accept the AAIA invitation, and their experiences are the subject of this first case study.

Context

The term “special order” is a common phrase in the Automotive Aftermarket, used to describe ad-hoc orders for out-of-stock products. Special order fulfillment can be complicated and labor intensive, relying on manual processes and a paper audit trail that requires exception handling by both the buyer and the seller. Most of these transactions are completed over the phone, requiring both parties to accurately record the details of their conversation.

Yet special orders are a fact of doing business in the Automotive Aftermarket. Given the pressures on inventory control, and the breadth and depth of assortments, no company can stock every part and accessory that their customers might need. Even the best integrated retailer/installers may need to special order 25% of the parts they install from an outside source.

Recognizing the opportunity afforded in improving the efficiency of the special order process, the Technology Solutions and Standards Committee of the Automotive Aftermarket Industry Association (AAIA) has delivered a cost effective solution to automating special orders throughout the Aftermarket; the Internet Purchase Order (IPO) standard.

Case Study Participants

O'Reilly Auto Parts

Mike Williams, Mike Ballard, Dan Burtchett & Wendy Hughes



Four Seasons Division of Standard Motors Products, Inc.

Ray Nicholas, Sankar Ramachandran, & Laura Daniel



Anticipated Benefits

O'Reilly focused on two business benefits:

- Improved customer service
- Reducing phone and resource costs

Four Seasons identified three potential benefits:

- Support their customer's request for IPO
- Reducing the number of special order phone calls
- Once IPO is more completely and broadly adopted, they may retire some older technologies needed to support other types of special orders

Business Justification

The business justification for IPO adoption was a 'no-brainer' for O'Reilly. Mike Williams felt that "getting electronic communications for special orders information from the stores to the suppliers is something we just needed to do"; there was little need for formal business case justifying the investment. We only had to do this once to support the many potential connections to our suppliers.

It was also a simple decision for Ray Nicholas at Four Seasons, as some of their largest customers require IPO. He figures if they can also save some time and money from implementing a required service, then that's a bonus.

Expected Operational Impact

O'Reilly's special orders are managed by a dedicated team at the Ozark distribution center. Special order requests gathered from O'Reilly stores are presented online by a proprietary application, and forwarded to this team throughout the day. Customer order personnel review these requests and place orders by phone with O'Reilly's suppliers, sending the price and availability information and/or order confirmation back to the stores using this same online application.

Four Seasons knew the impact of IPO on warehouse personnel would be minimal, as they continue to receive the same paperwork to pick and ship orders as before. The only operational change would be the positive impact of receiving fewer phone calls at customer service. Because IPO operates behind the scenes at Four Seasons and uses established operator interfaces, there were no additional internal requirements their implementation team had to consider.

Following the Implementation Process

The next few pages track the joint team through each phase of their implementation, recording their progress and observations throughout the adoption lifecycle.

Initiation and Planning

O'Reilly was a very early adopter of the IPO standard, so most of their implementation was planned independently with little input from a trading partner. Although the Four Seasons' IPO implementation was jointly planned with O'Reilly, some IPO functionality was already available. This existing web services infrastructure provided Four Seasons with an option of using either Partnership Network or deploying IPO as a standard web services implementation. Although Four Seasons uses Partnership Network with O'Reilly for other activities, they decided to use a standard web services implementation for IPO.

Project Management and Resources

All phases of the project were completed by two designated - not dedicated - resources at both O'Reilly and Four Seasons, so there was a constant need to balance this work with other priorities. O'Reilly said it took about 2/3 of their time over an eight month period.

Although IPO depends on multiple departments for proper operation at both O'Reilly and Four Seasons, the risk of implementing IPO was considered minimal by both trading partners. Neither company felt the need for a formal risk analysis.

Analysis and Design

This team feels an important part of their design is proper identification of the products within product categories. They use the AAIA Category Management categories as a default, but found they had to create some custom category codes and data definitions when there was no applicable Category Management definition.

O'Reilly and Four Seasons designed IPO business rules collaboratively, but maintain them separately. In O'Reilly's experience, it's usually the supplier that recommends changes to existing order policies, but it's give and take; O'Reilly won't buy 50ft. of hose to accommodate a special order for 2 feet, and Four Seasons requires the total shipping weight for each O'Reilly special order be less than 150 lbs. in order to ship UPS.

O'Reilly's vision for IPO has always included sending PIES & image data together in the collaboration, and O'Reilly is prepared to accept product data using Pies On Demand today.

Both companies observed that too many potential adopters of IPO companies focus on the technology and are wholly unprepared to share their data with a trading partner. In order to ensure their data was truly compatible, these two

companies spent weeks exchanging files of product data to make certain they shared a common understanding. In the end, data anomalies were minor. Some foreign language punctuation and some pack types needed attention, but most of the data was ready to go.

Four Seasons believes there is definite confusion between adopters in their definition of the IPO XML elements. Some of their trading partners include freight in the total or place the purchase order number in the ReferenceID element. They experience these types of issues most frequently when implementations are outsourced to third party service providers unfamiliar with the aftermarket vertical and the AAIA standards. They recommend that at least some members of any IPO implementation team should be familiar with the company's internal data, applications and technical infrastructure in order to properly design an IPO implementation.

Technologies Used in Adoption

The following technologies and standards were used in this implementation:

- PIES
- AAIA Category Management Codes
- JAVA (O'Reilly only)
- Microsoft .net (Four Seasons only)
- Web Services
- OAGIS
- AAIA Image Standards

Internal Development

Neither O'Reilly nor Four Seasons felt the need to define any new data types. Four Seasons added a new set of transaction files to support IPO web services, but these contain denormalized data already being mastered in their ERP and held in enterprise databases.

No legacy application modifications were required at either company. All web services and IPO messaging at O'Reilly were provided through Partnership Network. Four Seasons added about one new database API per IPO BOD to extract and apply the IPO data.

Although Four Seasons didn't experience any technical problems exchanging IPO messages with O'Reilly, they have experienced issues with other trading partners, specifically with incompatible versions of XML SOAP, global Namespaces, and compatibility issues between .net and JAVA standards.

O'Reilly and Four Seasons decided to use system log files to monitor IPO workflow and resolve errors.

Integrated Testing

O'Reilly says testing with Four Seasons went very well, but in general testing time has varied widely between trading partners. Sometimes turnaround on modifications to correct errors on the partner side can take a very long time; up to several months in some cases.

Some of these delays may have been the result of resource constraints, but in their opinion most trading partners underestimated the effort required to comply with the IPO specification, AAIA data standards and O'Reilly requirements – i.e. freight terms are required by O'Reilly and only one manufacturer has been able to comply.

Sometimes there were internal road blocks, or they were using an older version of the spec (1.0 vs.1.2.1). Sometimes their tools and skills were limited - multiple namespaces in OAGIS XML has been a reoccurring problem. The shortest implementation so far has been 3-4 wks.

Neither trading partner found it necessary to modify their existing service level agreements because of their IPO adoption.

Training and Change Management

Training on the new application for customer service at O'Reilly was provided by the analysts. A 'train the trainer' approach was used with key customer service agents training others, but no formal education program was required. Training the trainers was easy, as these were the agents who had participated in the requirements elicitation process. To this point IPO education and documentation is limited, but the need for these will increase when IPO is rolled out to the stores.

Four Seasons found user training was unnecessary since there were no changes to warehouse or shipping processes. The move to IPO was transparent to all warehouse and shipping operations. The same Web PO used to service requests from the Four Season's website is used for IPO orders as well. As a result, no user documentation or education was required.

Deployment

O'Reilly indicates their suppliers usually start with a few specific lines and broaden the available SKUs over time. Since O'Reilly sees this part of the implementation as a vendor led process, they let them get comfortable with IPO by 'turning on' new lines gradually. In the case of Four Seasons, O'Reilly can purchase several thousand SKUs from the air conditioning line, which are shipped from a single distribution center. All of these products were part of the initial implementation, and available immediately using IPO special order.

Neither company found the need to establish a formal process for IPO problem management, which is handled by just one analyst at O'Reilly. In his experience, most errors are usually a result of bad product data or a flawed interpretation of the IPO specification. In one case data was 'hard-coded' as a quick fix, but never removed when the right data became available.

Results

O'Reilly customer service agents are very happy and satisfied with IPO, indicating they finally have all the special order product information where they want and when they want it.

Because Four Seasons has IPO so tightly integrated with their existing web ordering system, very few operational employees are even aware IPO is being used. Although it's too early to know what impact IPO will have in increasing sales, Four Seasons sees IPO as a way to provide better and more timely information to O'Reilly counter people, helping them close more sales. Four Seasons also believes IPO is a way to strengthen their partnership with O'Reilly by providing a foundation for future collaborative opportunities.

O'Reilly's thinks their IPO partners should also enjoy improved website performance and fewer customer complaints because orders are routed through IPO now. In their experience, password management for vendor sites can make ordering a nightmare. They see the combination of improved labor and communication costs and 24/7 ordering adding up to a big improvement for their partners compared with a traditional supplier's customer service desk.

O'Reilly's requirement for transactional response time is 10 sec or less. Today they're seeing about 6.5 sec with application overhead and network latency, and a 1.5 sec response time within their own infrastructure. Four Seasons didn't have any recent benchmarks, but says IPO has been nearly transparent to their organization and there have been no performance issues.

Four Seasons sees IPO as an automated way of extending special order support beyond their website. Their customers can leverage the benefits of IPO collaboration by imbedding these services in their own systems to provide additional value to their countermen and customers.

Lessons Learned

Both companies believe new adopters need to be 'up to speed' on their own systems, get their data straight and make sure it's aligned with industry standards. They'll need to know where the necessary data is available in their infrastructure, and address any data enrichment requirements up front. They

should be sure to engage their business analysts at the beginning of the planning process, and not just throw the project at their programming staff. In their experience, data integration can be a challenge internally as well as externally. Even when two facilities are running the same ERP, different part catalogs can create data incompatibilities.

XML and XML tools are a core competency for IPO, and O'Reilly recommends they establish a competency center in their shop for these technologies. In particular, there is a heavy reliance on web services in IPO, so they need to get familiar with web service technologies and standards before they try to get up and running with IPO.

O'Reilly thinks Industry training would be a plus, and something AAIA should consider supporting. They also believe aftermarket application vendors should include support for IPO, as many middle and lower tier companies need this type of service to really get traction in our industry.

An Open Letter to the IPO Adopters

Normally our case study would end with the Lessons Learned section. But I received a letter from two of the O'Reilly participants after our last interview that I believe everyone considering IPO adoption should read. Our thanks to Wendy Hughes and Dan Burtchett of O'Reilly Auto Parts for their kind permission to include their letter in this case study, just as I received it.

Email Received on 7/27/2006

In thinking about the training that could be offered in regards to an IPO implementation, Dan and I think that perhaps AAIA should release a relatively short document that manufacturers/suppliers can review before they send anyone to XML, BOD, OAGIS, etc training.

We feel that sometimes the IPO discussions are narrowly focused on the raw technology of the IPO BODs and the transmission of these BODs when perhaps the most difficult aspect of IPO is getting the back end systems and required data available to be used within IPO.

If a manufacturer's first step in getting ready for IPO is to select some technologically savvy resources and send them to an XML/IPO BOD class, the manufacturer may end up wasting time and resources because their systems are months away from being IPO ready. From our experiences with PIES, images, and IPO, we suggest that some of the following should be quickly researched and evaluated.

Inventory Availability -

Do you have the ability to quickly determine if a product is in stock?

Is inventory and availability in a central location or is it distributed - if distributed what is the plan to get this information?

Physical location where the product is available

Do you know how long it will take to ship a product?

What are your back order options?

Are lead times for non-stocking products available and accessible electronically?

Does your product line have alternate, superseded/superceding, obsolete, and/or core items? Do you know have real time access to this information and know how it will affect emergency orders?

Customer Pricing -

The supplier needs to determine if they have customer pricing in a format that can be accessed and transmitted for IPO transactions.

Is pricing available electronically by customer, by item with any specific customer deals associated?

Shipping Information -

The supplier needs to know what products can/can't be shipped, what their shipping options are (is it shipped with standard orders, FedEx/UPS/etc).

Do you know the weight and shipping dimensions of the product?

Can the supplier provide an estimated or actual shipping/handling cost to the customer?

Can the supplier provide promised shipment date?

Product Information -

Is the supplier able to deliver PIES information? Is PIES delivery net changes or refreshes? (optional)

Can individual items be sent via PIES?

Does the supplier have quick access to the required product attributes to support an IPO transaction?

Network Speed/Availability -

Are there any limitations within the supplier's network that would prevent them from processing an IPO transaction in less than 5 seconds?

Product Images -

Is the supplier able to deliver product images electronically? (optional)

Thanks!

Wendy Hughes & Dan Burtchett
Senior Analysts
O'Reilly Auto Parts & Ozark Automotive