

AMP MRO Parts replacing Inventory with data

David Rieth, Airline MRO Parts (AMP) and **Manoj Singh**, Ramco Aviation explain how a state-of-the-art system supports the management inventory, purchases and more



Replacing inventory with data, speed, and automation is the nirvana that many have tried to attain rather unsuccessfully, until now. In this article, we're going to look at how this concept has been implemented in a hyper-connected mode at AMP. Below is a brief introduction to AMP, their business model, challenges, and key requirements.

AIRLINE MRO PARTS (AMP)

AMP is the purchasing agent and onsite consignment partner for MRO Holdings which includes Aeroman in El Salvador, TechOps Mexico, and Flightstar Aircraft Services in Jacksonville, Florida. Aeroman makes up 35 of the 60 lines of maintenance that MRO Holdings offers. AMP's operation required a unique business model to help support MRO Holdings and its components repair shops, specifically their requirement for consumables and expendables. AMP provides on-site on consignment, purchasing consolidation, and inventory disposition for MRO Holdings, while automating these processes.

AMP's Business Model

The business model is built around automation and consignment. With AMP's consignment model, users pay for materials when they need it; so they don't have to order large volumes of material in advance; it is AMP's responsibility to make sure that the material is available when the customer needs it. That material is located on-site and available for MRO Holdings users to use. This prevents slowdowns and stoppages in the operation.

What AMP needed from a software solution was to streamline the whole consignment process where AMP had to flip thousands of purchase orders (POs) coming from MRO Holdings to PO for hundreds of suppliers, carrying out transactions every few seconds. MRO Holding users would order material from AMP and AMP, in turn, would flip those POs to its suppliers. AMP decided to use Aerochange to help integrate with MRO Holdings on one end and suppliers on the other. The missing piece was the automation of PO flip in the middle, and that is where Ramco's enterprise aviation software came into picture.

ENABLING ZERO INVENTORY AT AMP

The business model that AMP was striving to achieve was to move towards the concept of Zero Inventory, i.e., either move the inventory to the customer location in terms of consignment, or keep it back at the supplier location and still be able to meet the demand and the lead time requirements from the customer, MRO Holdings.

Zero Inventory Models Enabled at AMP

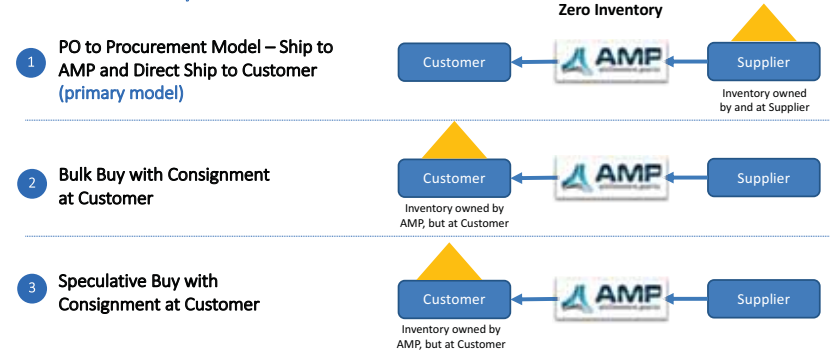


Figure 1

Figure 1 captures these different inventory positioning models that AMP adopted to meet the end goal of zero inventory. The first inventory model in figure 1 is the common PO to Procurement model, with the only difference in this case being that inventory is maintained at the supplier. The challenge with this model is the speed or lack thereof of communication and transaction, for thousands of orders to meet the lead time requirements of the customer. The second zero inventory model in figure 1 is Bulk Buy quantity based on customer's forecast requirements, kept at customer's facility to meet the demand. As and when customer pulls the material from the inventory, invoice is generated for the customer. Third model is the Speculative Buy where AMP buys surplus from the market and positions it at a third party for selling to any customer. The sale of the inventory in this case triggers invoice generation.

HOW THE NEW SOLUTION SUPPORTS THE BUSINESS

In this article, we have explained how Ramco solution was designed to meet the first inventory model — PO to procurement model — in a hyper-connected and automated manner. From a technology perspective, the requirement was to have a 'zero touch' experience, for order to cash process involving thousands of PO transactions, shipments, and invoicing - flowing from AMP's customers to suppliers and back. Ramco solution was placed at the core of this end-to-end

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business process, in integration with Aeroxchange to connect with AMP's customers and suppliers. Figure 2 and Figure 3 offer two views of this process. For the implementation of Ramco solution, the suppliers selected were those they were already part of Aeroxchange network.

Enabling a high volume, High Speed, Fully Automated, multi-enterprise Integrated Solution

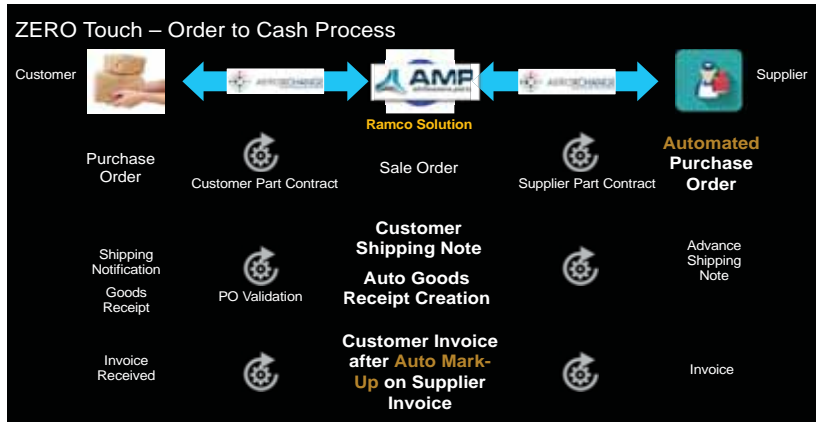


Figure 2

Zero Touch – Order to Cash Process

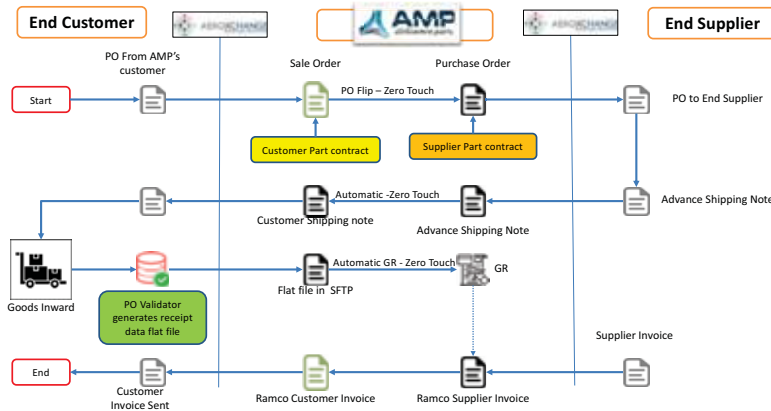


Figure 3

The module from Aeroxchange to which Ramco connected, both on the customer side and supplier side, was AeroBuy.

The purchase order is released by, in this case, MRO Holdings or Aeroman or Flightstar. It goes into the Ramco instance of AMP, where lot of checks happen and business rules get applied depending upon the MRO Holding entity from where the PO is received. This customer PO, is then automatically converted into Sale Order within Ramco, and then the 'magic' happens with a unique Ramco functionality called a PO flip, wherein, the business logic is applied to the Sale Order, along with all the terms and conditions of customers and suppliers, including supplier-part mapping, the choice of preferred supplier based on the past performance, etc. to determine the right supplier for that transaction and then flip it to create a PO for supplier, which then gets passed on to the supplier through Aeroxchange.

Once the supplier has made the shipment, the process is redirected to Ramco where a shipping note is created, to be sent to the customer based on the information gathered. Once the goods are received by the customer, the information comes back into Ramco where a goods receipt is automatically generated. This goods receipt is matched with the PO, a very important part of the business process enabled by the new Ramco solution. As a last step of the process, when the invoice is sent from the supplier to AMP, it enters into Ramco through Aeroxchange integration, and a three-way matching is performed. Also, AMP has the ability to apply a mark-up before invoicing back to the end customer.

All these are regular business processes that happen in any organization but the key differentiator here is the complete automation of the process. There is only a handful of people in the procurement organization, with the added challenge of thousands of POs flowing back and forth between AMP's customers and suppliers, with almost zero inventory. This is the essence of the whole solution that has been deployed, enabling a high volume, high speed, fully automated transactions across multiple enterprises.

In addition to the happy path of the PO-Shipment-Invoice, is there are any changes to the PO by the customer or supplier, or any shipment delays, those are managed as exceptions in the system. These exceptions are captured as part of the process, and the relevant notifications are passed to customers or suppliers for further action.

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BENEFITS OF THE SOLUTION IN PRACTICE

This hyper-connected and automated supply chain has started providing significant and tangible business benefits to AMP which are listed below (figure 4).

AMP Order to Cash Procurement Lead Time Savings

	Time Consumption Pre Ramco Implementation	Time Consumption Post Ramco Implementation	Efficiency gain (%)
Customer PO to SALE ORDER	15 min	3 min	80%
CREATE SUPPLIER PO	2 min	Automatic	100 %
SEND SUPPLIER PO	2 min	Automatic	100%
RECEIVE PARTS	5 min per Goods Receipt	0 min (Bulk processing with PO Validator)	100%
CONFIRM ISSUE OF PARTS	1 min / Issue	Automatic (5 min /1000 records – once a month)	~100%
CUSTOMER INVOICING	5 min	5 min	

Avg. Time Saved : 20 minutes per customer PO

Figure 4

“After the new solution was implemented, it was possible to observe the complete PO to invoice process, by breaking it down into individual steps and identifying the time spent at each step — from PO to Sales Order generation, supplier purchase order creation, Parts receipt, and finally invoicing.”

After the new solution was implemented, it was possible to observe the complete PO to invoice process, by breaking it down into individual steps and identifying the time spent at each step — from PO to Sales Order generation, supplier purchase order creation, Parts receipt, and finally invoicing. It was found that on an average, 20 minutes could be saved for each customer PO through automation, which, considering the thousands of POs involved each month, amounted to a very large saving.

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EXPLORE



It is important to note that the Ramco solution implemented at AMP is part of the larger digital transformation solution that Ramco has brought to the market. Some of the key tenets of this framework are listed in figure 5.

5 key tenets of Ramco Intelligent Enterprise Application



Zero UI



Artificial Intelligence & Machine Learning



Frictionless Experience



Self Auditing Enterprise Systems



Event-driven Architecture (ANA)

Figure 5

One of the tenets of digital transformation is Frictionless Experience. The hyper-connected and automation solution at AMP is one of the examples of frictionless experience which cuts across the boundary walls of organization. The other tactical example would be facial recognition for the sign-off by aviation users carrying out aircraft inspections. Zero UI, another tenet, is the concept which enables business transactions to be carried out without logging into a system. Transactions can be done through usual emails and notifications and mobile chatbots that Ramco has enabled. AI/ML is used for automating and predicting a lot of data entry in the processes. Self-auditing is the process of

bottleneck identification in the process through continuous monitoring of operational metrics.

AMP and Ramco together achieved that elusive goal of near zero inventory through this implementation. If you would like to know more details about this solution, or in general how Ramco is empowering organizations through its digital technologies powered by AI/ML, please reach us at contact@ramco.com

DAVID RIETH



David Rieth is the Director of Business Development for Airline MRO Parts (AMP). With over a decade of business development and aviation experience, David has contributed to the aerospace industry through positions in sales, support, product development, and technical advisory. As Director of Business Development for AMP, he is currently responsible for the growth of that business's supplier and customer relationships, sales, and marketing efforts.

MANOJ SINGH



Manoj Singh has two decades of experience in software, consulting, and business management. At Ramco, he heads the business for Ramco Systems Corporation in the US and Americas and has been instrumental in driving thought leadership and significant business growth in the US. He holds a bachelor's degree in Mechanical Engineering, Masters in Industrial Engineering, and an MBA in Information Management.

AIRLINE MRO PARTS (AMP)



Airline MRO Parts (AMP) is an industry leader in purchasing consolidation, inventory disposition, and onsite inventory management. Focused on consumable and expendable inventories, AMP has built a strong foundation of long-lasting relationships with an extensive list of global suppliers. With a global footprint, AMP is able to service customers around the world, providing high-quality inventory services which enable them to operate more effectively.

RAMCO AVIATION



Ramco Aviation software offers Maintenance solutions on cloud and on premise with multi-tenant capability and next-gen mobility, catering to the needs of Airlines, Heli-Operators, MROs and Charter operations. Next-gen mobility solutions for maintenance operations are available through an app ecosystem where MRO supervisors, mechanics, pilots, storekeepers and customers can seamlessly execute critical operations on the go, from anywhere, anytime.

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