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HOW KILLDEER MOUNTAIN MANUFACTURING IS OPTIMIZING AEROSPACE SUPPLY CHAIN VISIBILITY USING RFID (Postprint)

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Final Report

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14. ABSTRACT
This project is a trial RFID Supply Chain Optimization pilot for the purpose of determining the optimal method to enhance supply chain capability and responsiveness by implementing RFID processes along with Lean/Six Sigma and e-commerce that is intended to be deployed into small and medium manufacturing and supply chain facilities. A key goal of this program is not only to comply with DOD shipping mandates, but also implement RFID solutions that will provide enhanced product visibility and reduced cost.

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How Killdeer Mountain Manufacturing Is Optimizing Aerospace Supply Chain Visibility Using RFID

➔ **Situation**

Killdeer Mountain Manufacturing, a manufacturer of high reliability electronic assemblies used in the aerospace industry, was engaged by the Air Force Research Laboratory Material and Manufacturing Directorate Manufacturing Technology Division (ManTech) at Wright Patterson AFB to initiate a trial RFID Supply Chain Optimization pilot for the purpose of determining the optimal method to enhance supply chain capability and responsiveness by implementing RFID processes along with Lean/Six Sigma and e-commerce that is intended to be deployed into small and medium manufacturing and supply chain facilities. The Air Force was interested in developing an affordable RFID/Lean/Six Sigma/e-commerce solution toolkit that would allow other suppliers to integrate and benefit from RFID and other state of the art supply chain technologies. A key goal of this program was not only to comply with DOD shipping mandates, but also implement RFID solutions that would provide enhanced product visibility and reduced cost.

Killdeer decided to approach implementation of this project in a phased approach. For the first phase, Killdeer needed to quickly and effectively implement RFID tagging of shipments to a select Boeing facility. In subsequent phases, Killdeer is implementing solutions to aide in WIP (work-in-process) tracking/visibility and inventory control.

➔ **Critical Issues**

During the implementation of Phase 1, Killdeer had a number of challenges to address that are not unlike those that other small-to-medium manufacturers would encounter:

❖ They needed a high performance RFID and the associated enabled information system at an affordable entry point price.

❖ Killdeer needed to implement the system with a minimal investment in a software solution.

❖ Because they ship specialized products to airline manufacturers, the products run on a given Killdeer production line change frequently. Therefore, Killdeer needed an RFID tagging solution that was easily adaptable to their agile manufacturing lines.

❖ As with most technology implementations, Killdeer was operating under tight time constraints for implementation.

❖ Finally, the ultimate solution needed to be easily replicated for other small & medium suppliers to the DOD.

➡ **The Solution**

ERP Solution: Killdeer chose to use the Microsoft BizTalk Server 2006 R2 because it provides management support for RFID devices such as RFID readers and RFID printer/encoders, aggregation of RFID data, and visibility into Microsoft's Business Activity Monitoring. A Microsoft GP backend was also chosen. Therefore, any hardware devices chosen for this project needed to be supported by the BizTalk Server 2006 R2 and Microsoft GP.

Printing and Encoding Solution: Due to the agile manufacturing environment, Killdeer's chosen printing solution needed to be able to reliably print and encode variable RFID and barcode data on the fly. In addition, Killdeer Manufacturing needed a solution that would allow them to RFID-label only limited shipments to Boeing with minimal impact on its regular shipping line. Ultimately, Killdeer decided to use Paxar's Monarch Model 9855RFMP RFID Printer/Encoder and Paxar's UHF Class 1 Gen 2 RFID labels with Alien Squiggle inlays.

➡ **Capability**

Paxar's Monarch® printer/encoder was initially considered due to the connectivity between Paxar's industry-leading Monarch® 9855™ RFID printer/encoder and Microsoft's BizTalk Server 2006 R2. Paxar was ultimately chosen due to the robust and reliable performance of the Monarch® 9855RFMP™ printer/encoder, and the 110% guarantee of Monarch® Smart Labels. Essential to this implementation was the consultative support and integration Paxar provided to this total solution.

Paxar's established strategic relationship with both Microsoft and Alien Technology created a seamless collaboration to design and implement a pilot RFID system that would meet Killdeer's carton labeling requirements. The cooperative efforts of three established industry leaders, (Paxar, Microsoft, and Alien), in the design of the prototype kit was a critical factor to Killdeer meeting their aggressive cost and schedule implementation goals.

➡ **What's Next?**

Now that the first phase of RFID implementation has provided a viable solution for **carton shipping**, additional operational studies are underway for applications such as **RFID tracking of work-in-progress (WIP), asset tracking,** and **inventory control**. The goal of this "next level" integration of RFID tracking is to bring more visibility throughout the entire manufacturing process.

➜ **What's Your RFID Challenge?**

Let the RFID experts at Paxar evaluate your process and help you choose the solution that's right for you. In addition to RFID printer/encoders, Technology Investment Protection and 110% money-back guaranteed supplies, Paxar also has:An in-house RFID lab to assist you in optimizing read rates and ranges through proper inlay selection and tag placement;

- Free analysis of your distribution center or manufacturing facility to help you determine where RFID will best fit in your process flow; and

- Professional systems integrators to design and implement RFID solutions.

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