

**NUCLEUS  
RESEARCH**

RESEARCH NOTE D79

ROI ANALYSIS YOU CAN TRUST™

# ROI Case Study: Microsoft Business Solutions Matrix Packaging Machinery

## **THE BOTTOM LINE**

Matrix Packaging Machinery had already deployed Microsoft Business Solutions Solomon when it realized it needed to monitor its inventory and work in progress. Adding a work order module produced an incremental ROI by greatly speeding order times, supporting better inventory management, enabling more accurate and timely financial projections, and reducing financial personnel costs.

**ROI: 568%**

**Payback: 2 months**

## **THE COMPANY**

Founded in 1988, Matrix Packaging Machinery is one of the world's leading manufacturers of vertical form-fill-seal packaging equipment for various manufacturing industries. Based in Saukville, Wisconsin, Matrix serves clients worldwide.

## **THE CHALLENGE**

In the late 1990s and early 2000s, Matrix was growing but faced several major challenges:

- Matrix was keeping track of thousands of parts on paper and had no way of knowing which parts were available and which needed to be ordered for the next production run.
- Without real-time knowledge of inventory levels and work in progress (WIP), Matrix could not close its books in a timely manner.
- To gauge the past year's profitability, the company had to conduct a complete physical inventory at the end of each year.

In a slow-growth industry resistant to technological change, Matrix's managers realized that in order to increase efficiency and profitability, the company would need a system to monitor parts inventory levels and WIP.

## **THE STRATEGY**

Matrix had deployed Microsoft Solomon ERP system in 1996 to support general corporate finance and accounting. In early 2001, Microsoft offered Matrix the opportunity to beta test a new work order management module for Matrix's existing Microsoft Solomon ERP system. Matrix's managers decided to consider the opportunity, realizing that because the software would tightly integrate with the accounting system in use since 1996, it could simultaneously solve both their inventory management and general ledger problems.

Matrix conducted a beta test of the system, and decided to implement the work order module because of the following reasons:

- Once Matrix's entire parts inventory was entered into the system, the company would no longer need to rely on a pen and paper process to keep track of parts on hand and parts orders.

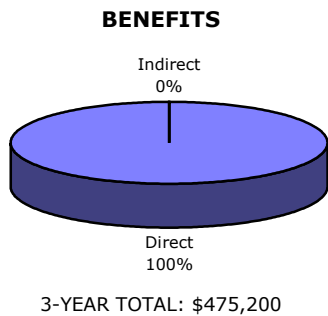
- With the inventory and bill of materials (BOM) software in place, Matrix could create a real-time WIP system to track parts inventory levels as the manufacturing line was running and as orders came in, giving the company a far more accurate timetable for potential customers.
- The work order software was customizable out of the box, with a minimum of outside consulting work.

With these benefits in mind, Matrix’s managers decided to purchase the work order module after the beta test was completed. The installation required a consultant and an IT employee working for one week and one week of training for one staff member.

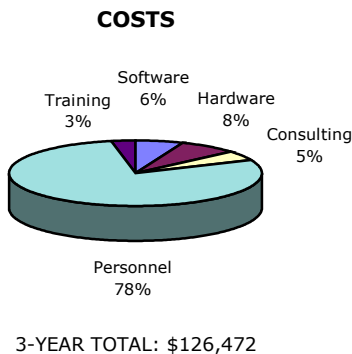
**KEY BENEFIT AREAS**

The deployment of the work order module quickly helped Matrix increase efficiency and visibility into its inventory, WIP, and finances. The greatest bottom-line returns were realized in the following areas:

- Increased sales. With real-time knowledge of its parts inventory and WIP, Matrix was able to reduce its order lead time to 10–12 weeks. In fact, Matrix was able to complete some orders in a previously unheard-of three to four weeks. Because of its new ability to promise — and deliver — rapid order times, Matrix estimates that in the first year after the deployment, the company closed an additional 8 to 10 orders that would not have previously been possible. Matrix also enjoys far higher manufacturing productivity and sales per employee than its nearest competitor.
- Reduced personnel costs. Without the real-time financial information provided by the integrated accounting and inventory system, Matrix would have to hire one additional FTE to conduct financial analysis and other accounting tasks.



Matrix’s managers attribute the company’s ability to run a leaner, more efficient operation directly to the Microsoft Solomon software and the work order module. Having only 35 employees and working in a mature industry, Matrix continues to enjoy a nearly 30 percent annual growth rate due almost entirely to its ability to deliver custom-engineered machines in a fraction of the time that it takes its competitors.



**KEY COST AREAS**

Key costs included personnel, hardware, software, and consulting. Personnel made up the largest cost category, accounting for 78 percent of total project costs. This number is due mostly to the half of an FTE needed to enter inventory data into the system on an ongoing basis. Other cost areas included the initial one-week consulting engagement with a Microsoft developer, the license fee for the software, and a one-time hardware cost for servers and desktop PCs.

## **LESSONS LEARNED**

Matrix reports that the deployment of the Microsoft Solomon work order management system was nearly flawless. Matrix's IT staff took advantage of Solomon's customization manager and conducted much of the custom coding in-house without hiring consultants. Matrix attributes much of its success to its prior years of experience with the Solomon accounting software, though Matrix's managers suggest that if the order management module had been available when the company originally installed Solomon in 1996, they most likely would have implemented it then. In fact, according to Matrix's managers, the most significant lesson learned was that the company should have installed such a system far sooner.

## **CALCULATING THE ROI**

Nucleus quantified the costs of software, hardware, consulting, personnel, training, and other investments over a 3-year period to quantify Matrix's total investment in the work order management software. Although the Solomon ERP system is necessary to support the work order module, the costs of deploying Solomon at Matrix were not included in the calculations because the deployment occurred many years earlier and was not driven by the project. Companies not already using the Microsoft Solomon ERP system and considering the ROI from the work order management module should include the costs of both Solomon and the work order management module in their evaluation.

Direct benefits calculated in this report include profits from increased sales attributed to production line efficiencies that were a direct result of the work order system.

## Matrix Packaging Machinery

### SUMMARY

Project:	<b>Microsoft Business Solutions</b>
Annual return on investment (ROI)	<b>568%</b>
Payback period (years)	<b>0.18</b>
Net present value (NPV)	<b>130,106</b>
Average yearly cost of ownership	<b>42,157</b>

ANNUAL BENEFITS	Pre-start	Year 1	Year 2	Year 3
Direct	0	158,400	158,400	158,400
Indirect	0	0	0	0
<b>Total Benefits per Period</b>	0	158,400	158,400	158,400

DEPRECIATED ASSETS	Pre-start	Year 1	Year 2	Year 3
Software	0	0	0	0
Hardware	0	0	0	0
<b>Total per Period</b>	0	0	0	0

DEPRECIATION SCHEDULE	Pre-start	Year 1	Year 2	Year 3
Software	0	0	0	0
Hardware	0	0	0	0
<b>Total per Period</b>	0	0	0	0

EXPENSED COSTS	Pre-start	Year 1	Year 2	Year 3
Software	5,000	900	900	900
Hardware	9,500	0	0	0
Consulting	6,000	0	0	0
Personnel	1,248	32,760	32,760	32,760
Training	0	1,248	1,248	1,248
Other	0	0	0	0
<b>Total per Period</b>	21,748	34,908	34,908	34,908

FINANCIAL ANALYSIS	Results	Year 1	Year 2	Year 3
Net cash flow before taxes		123,492	123,492	123,492
Net cash flow after taxes		61,746	61,746	61,746
<b>Annual ROI - direct and indirect benefits</b>				<b>568%</b>
Annual ROI - direct benefits only				568%
<b>Net present value (NPV)</b>				<b>130,106</b>
<b>Payback (years)</b>	<b>0.18</b>			
Average annual cost of ownership		56,656	45,782	42,157
3-year cumulative ROI	1196%			
3-year IRR	566%			

### FINANCIAL ASSUMPTIONS

All government taxes	50%
Discount rate	15%

All calculations are based on Nucleus Research's independent analysis of the expected costs and benefits associated with the application profiled in the accompanying case. Financial modeling tool, format, and methodology copyright Nucleus Research Inc., all rights reserved.