

Precision Machining & Medical Device Compliance

Standard Off-the-Shelf ERP Is Just the Foundation.

Surgically extending JobBOSS with custom web apps and parallel database architecture to establish strict medical compliance and uncover hidden capital.

1. Executive Summary

A precision machine shop in South Carolina required strict manufacturing control and deeper operational visibility than their out-of-the-box JobBOSS ERP could provide. Instead of ripping out their core system, Intrinsic Systems engineered a secure, parallel Microsoft SQL Server database alongside a suite of custom on-premises web applications. This architecture safely extended JobBOSS's capabilities, automating everything from rigorous two-step work instruction approvals and mobile tool crib tracking—managing over \$300,000 in active tool inventory—to XML-based invoicing. It transformed disjointed manual workflows into a highly controlled, compliance-ready operation.

2. Business Impact

- Guaranteed quality certification compliance through automated, mandatory two-signature work instruction approvals.
- Gained complete visibility into a >\$300,000 cutting tool inventory, identifying and permanently dispositioning over \$100,000 in obsolete, unused tooling.
- Eliminated manual file creation and Windows permission errors during shop floor job releases.
- Replaced cumbersome manual reporting with dozens of live, ODBC-connected Excel dashboards for forecasting and performance tracking.
- Enabled daily production scorecarding across two plants and multiple shifts to monitor real-time setup hours, run hours, and operating efficiency.
- Dramatically increased shipping throughput by automating Certificates of Compliance and transmitting thousands of XML/SFTP invoices annually.

3. The Operational Friction

Before the implementation, the shop floor was heavily reliant on precarious manual administration. Releasing a new job meant manually creating server folders, copying PowerPoint work instructions and Excel inspection documents, typing in job numbers, and manually setting Windows file permissions. On a busy shop floor, simple typos meant machine operators couldn't locate the files they needed, or incorrect permissions prevented them from saving critical compliance data—stacking up frustrations and dragging down productivity.

Furthermore, maintaining tool inventory across the plants was essentially done blind. All tool data was scattered across hundreds of disconnected Microsoft Office files. Finally, because the shop produces medical-grade components, ensuring operators only ran jobs with fully approved, up-to-date work instructions was a critical certification requirement that relied entirely on error-prone human oversight.

4. The Software Gap

JobBOSS serves as a highly reliable core ERP, capturing essential data like time and production quantities. However, it lacked the specific features required to execute this company's exact operational workflows. It could not natively enforce multi-signature document approvals for medical compliance. It did not offer a mobile-friendly interface to scan tool inventory at the drawer level. It couldn't automatically generate specialized Certificates of Compliance or handle proprietary XML/SFTP invoicing for their largest customers. Crucially, attempting to heavily modify JobBOSS's core database directly presented an unacceptable risk of breaking the system during future vendor software updates.

5. Operational Software Gap Analysis

The business's quality compliance and tracking requirements evolved, their commercial ERP remained a generalized foundation, and direct customization carried too much upgrade risk.

This misalignment created an **Operational Software Gap**: a severe disconnect between the rigid capabilities of an off-the-shelf system and the highly specialized, zero-error workflows required on a precision medical machining floor.

6. Architectural Execution

To permanently close this gap without jeopardizing the core ERP, Intrinsic Systems deployed a modular extension strategy.

Parallel Database Architecture: We constructed a custom Microsoft SQL Server database running parallel to JobBOSS. All custom enhancements and non-ERP data are stored here. This architectural precaution completely isolates our custom functionality, ensuring absolute safety when the vendor releases new JobBOSS updates.

On-Premises Web Application Suite: We developed a suite of secure, internal web applications that connect to both the JobBOSS schema and our custom database:

- **VWI Finder & Job Release:** Automates the creation of all job folders, PowerPoint instructions, and Excel inspection logs, automatically populating initial fields and setting exact file permissions. Crucially, we built a custom two-step approval

process for Visual Work Instructions. If a revision level increments, new approvals are automatically mandated, and shop floor users are physically locked out of viewing the instructions until management signs off.

- **Production Log:** Extends JobBOSS's basic time tracking into a daily operational scorecard. It tracks expected versus actual setup and run hours, logs exact reasons for downtime, and provides a daily efficiency rate. Scaled seamlessly to both of the client's plants and running across multiple shifts, it builds unprecedented accountability into the shop floor.
- **Ship Tool & e-Invoice:** Automates the creation of exact Certificates of Compliance for shipments. Additionally, we built an SFTP-enabled UI that pulls JobBOSS data, translates it into proprietary XML formats, and uploads it directly to the customer's portal—successfully transmitting thousands of invoices annually and tracking status in the database to guarantee payment.

Mobile Tool Crib Management & Inventory Control

To achieve tool crib visibility, we first engineered a custom VBA "bot" to rapidly extract fragmented data trapped across hundreds of legacy Microsoft Office files, pushing it into our new SQL database and correlating it with JobBOSS's open orders. From there, we deployed a responsive web app utilizing standard \$200 smartphones. The system now tracks over \$300,000 in inventory, organizing 16,000 active tool tags and over 2,500 unique tool models. Staff can scan 2D barcodes at any of the nearly 5,000 unique tool storage locations between the two plants—each neatly labeled with a custom QR-code printed directly from the system. By mapping exact tool requirements to specific jobs, the client confidently dispositioned over \$100,000 in dead inventory.

ODBC Reporting Layer: Finally, we deployed dozens of custom Excel dashboards utilizing live ODBC connections to both databases. This gives management instant, automated reporting on Sales Forecasts, Production Performance, Quote Statuses, Job Backlogs, and New Parts.

7. Final Outcomes

By surgically extending their ERP rather than replacing it, the client achieved total process control, eliminated daily administrative bottlenecks, and fortified their medical device compliance standing. The resulting system manages more than \$300,000 in tooling inventory, tracks 16,000 active tool tags across nearly 5,000 locations, and enabled the disposition of over \$100,000 in obsolete inventory.

Operational Friction

Manual job releases & blind tool inventory



Software Gap

JobBOSS lacks medical compliance gates & mobile tracking



Operational Software Gap

High-risk, unscalable shop floor administration



Architectural Solution

Parallel MSSQL DB & Custom Web App Suite



Operational Flow

100% compliance, accountability, and automated reporting

8. Key Takeaways

- Operational bottlenecks are often caused by software-workflow misalignment.
- Commercial ERP replacement is not always necessary to achieve operational control.
- Custom data architecture must be strictly isolated to protect core vendor updates.
- Compliance should be enforced systematically by software logic, not by human memory.
- Providing operators with accessible mobile tools (like smartphones) drastically increases data collection accuracy and adoption.
- Process control requires integrated telemetry; you cannot continuously improve what you do not measure.

9. Continue Exploring

Operational Software Gaps

<https://intrinsic.systems/software-gaps>

The Blueprint

<https://intrinsic.systems/approach>

Solutions

<https://intrinsic.systems/solutions>

Schedule a Strategic Assessment

<https://intrinsic.systems/contact>

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