
Leading Producer of Oil and Gas Pipe Takes Manufacturing Operations to Next Level



A leading producer of steel pipe for the oil and gas industry has implemented a web-based Enterprise/Operations Resource Planning solution to support their North American operations. The solution enables the plants to manage a customer's job throughout the manufacturing lifecycle, support both the organization and customer infrastructure with one site while ensuring quality and accuracy. It also enables third party inspection services to be completed remotely with the data produced from operations. This has greatly reduced costs, errors and delays traditionally associated with the steel pipe industry.

Situation

In today's highly competitive manufacturing environment, having all your data accessible with the push of a button is critical. A leading producer of steel pipe utilized Conperio to analyze their current business/manufacturing processes and disparate systems to make recommendations for improvement and execute and deliver a state-of-the-art solution.

The current processes involved over 40 application from multiple providers and was heavily reliant on written notes, written logs, emails and spreadsheets across multiple locations. Customer inventory was tracked through spreadsheets that were 24-48 hours behind operations. Handled across multiple applications and different databases, these locations and applications were not standardized or easy to maintain and use. The existing infrastructure did not accommodate customer needs and resulted in late, lost or jobs completed incorrectly. All these non-value-added steps led to question about the future growth and profitability of the organization.

The existing processes required employees to dedicate numerous man hours weekly to track the location of jobs with the manufacturing processes and find essential job information. Most time was spent searching for paper-based quotes, tracking jobs and trying to determine where paperwork was in the process as opposed to getting the job done and done correctly.

Off the shelf Enterprise Resource Planning (ERP) systems only addressed a few of the opportunities and came with additional challenges including maintenance and patching costs. At the same time, these solutions did not provide for plant floor integration and would force changes to existing processes that did not necessarily align with the business.



Solution

After analyzing the environment, Conperio was able to propose a solution that would not only automate and standardize the customer's business processes, but also align with their customers, suppliers and third-party vendor data.

Conperio designed and created the application that integrated Sales Processes, Resource Management, Manufacturing Operations, Job Tracking, Downtime and Waste Tracking,

Customer Portal, Shipping and Third-Party Inspection Services.

Sales Order Processes – Allows for controlling the sales order process from customer inquiry, quote preparation and approvals, automated quote delivery.

Resource Management

- Raw Materials - Upon approval of sales orders, Resource Management integrated Sales Order and automated the supplier's orders for raw materials for fulfillment of orders and receipt and delivery of those raw materials at a separate facility.
- Human Capital – Integration with existing time and attendance system allow for tracking labor costs as product is created.
- Inventory – On hand inventory tracking of raw materials, work in progress (WIP) and finished goods.

Operations

- Slitting Operations - Upon receipt and inspection of raw materials, operations to automate the slitting operations and preparations for manufacturing begin and are tracked for each job/customer. This system is integrated with major suppliers of raw materials to determine receive dates. Raw chemistry data is gathered from suppliers to assist in the receiving inspection and compared to arriving materials.
- Operations Planning – This module focused on how jobs are queued and scheduled according to priority and demand. All jobs are tied back to specific sales orders and PO's issued for raw materials.

- **Operational Interfaces** – Screens were produced that were embedded in the manufacturing SCADA system. These screens facilitate the capture of information from operators and directly from the controls layer to ensure data input with or without interlocks to machinery.
- **Plant Floor Integration** – Through production schedules, recipes are pushed down to the plant floor and data is harvested automatically from machines utilizing the SCADA and controls systems. Other data are logged throughout the process to ensure quality.
- **Third Party Vendor Operations** – External third-party inspections services required on-site personnel hired by customers to come on-site and perform validation of required specifications. By supplying all the data captured from the Operations, third party inspectors now can inspect data remotely that is validated throughout the process thus gaining tremendous advantages in both time and utilization of resources to get product to customers faster with a higher level of quality. This provides not only millions of dollars of efficiency throughout the entire process, but also desired customer improvement.
- **Shipping** – Through use of shipping requests and pick tickets, the shipping process is streamlined which minimizes mistakes and allows for product shipments to be tied with sales orders. Truck driver management allows for tracking and managing all elements of the loading process for both quality assurance and continuous improvement.

Downtime and Waste Tracking – Capturing cascading downtime events with the ability for user defined reason codes is a critical component when implementing a downtime reduction plan. It also captures and quantifies the associated production and material losses as well as waste generation and allows the organization to attach hard costs to these associated events.

Quality Assurance – Integrating quality specifications with raw material receipt and the manufacturing process allows for automatically alerting users to potential quality incidents. These incidents can be further analyzed to deviations, corrective actions and change controls. Customer complaints is also a function of this module and can tie these events together as well.

Job Tracking – Internal and external users can login to the application and find jobs based on milestones. In the event of prioritization issues, jobs can be assigned quicker turn times to make sure the work is completed in a timely manner based on customer needs and expectations.

Reporting – The reporting module allowed for reports to be created dynamically on all data collected within the system. Whether is a report to show the number of jobs run in one month, the number of shipments sent out in a week, the average time it took a specific operator to work up a job or all jobs in a quarter, or what revenue was generated for a specific customer order. These reports could all be scheduled daily, weekly, monthly, hourly or any combination in between and sent via email or network shares. All reports could be delivered via PDF, Excel, Word or data driven reports.

Customer Portal – Through the use of a browser and the internet, customers can manage their own inventory, schedule shipments, retrieve real-time job information and statuses. Customers can also generate new orders from the portal that are immediately put into the sales order process. Customers also retrieve quality assurance data and certificates all with a click of a button.



Benefits

Manufacturing Lifecycle Management

The system created by the Conperio team manages all aspects of a customer's order throughout the entire manufacturing lifecycle. From request for quote to shipping finished product. As a job progresses through the operations, both the customer, sales personnel and company management are kept abreast of progress through automated emails, job schedules and dynamic dashboards.

Reduced Man Hours

After analyzing prior processes, Conperio found that manually writing orders, manually entering job information, manually entering operational data and manually creating standard reports/forecasting models was taking mountainous man hours. This system provided automation and streamlining of all these operational processes. Users now enter information once and it is used throughout the process quickly and efficiently and most importantly, completely. More time is now spent working with customers needs as opposed to researching, reworking and correcting data, and thus an overall increase in throughput in the entire organization.

Reduced Errors and Costs

By automating many of the tasks associated with standard paper and spreadsheet workflows, this system ultimately reduces time and costs. Through the concept of "input once and output often", the system removes the costs and hassles of sending emails and constantly updating spreadsheets.

Quality and Reduce Downtime

Capturing downtime events and waste is critical in any organization to continuously improve their processes. Through the plant floor integration and web-based solution, this organization gained valuable abilities to assign reasons and costs to all downtime and waste as well as became more proactive which allowed predictive action based on historical trends and key metrics.

Customer Satisfaction and ROI

By implementation of this system from Conperio, this organization dramatically increased customer satisfaction. In the oil and gas industry as in most organizations today, data are key and sharing data with customers is valuable and sometimes mandatory. By eliminating the need for on-site third-party inspection, this solution provided customers with more reasons to buy. Instead of taking weeks for this process to unfold, providing data to complete this required regulatory piece was dramatically streamlined and bound their customers for long term successes. This alone created an ROI in only 7 months once in place.

Total Solution

Using this system, this client can manage the lifecycle of a job from start to finish and support the infrastructure of a now modern manufacturing environment.