

ETO Automation Transforms the Business Process

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Engineer-to-Order (ETO) product designers face challenges to provide "mass customization" of their products better, faster, and cheaper than their competitors. An ETO automation system allows many or all portions of the ETO process to be automated, thus providing quicker turnaround, lower engineering costs, and consistent adherence to product rules and standards.



Systems that automate the ETO environment include several of the following capabilities:

- 3D CAD Systems used by engineering to design and model end products to customer spec
- PLM or Product Life Cycle Management Systems to capture historical product and part attribute data for reuse and historical management
- Document Management Systems provide complete description and cataloging of drawings, specifications and part data
- Product Configurators which enable rules based configuration of end products from the collection of part and sub assembly information for optimal reuse, this is often used in connection with Order Management systems and Quotation Systems a part of ERP solutions
- ERP or Enterprise Resource Planning Systems to automate and integrate Bill of Material, part, routing, quotation, estimating, requirements planning, procurement and finance information

Business Process Automation

Business Process Automation is the practice of analyzing, documenting, optimizing, and automating business processes. The business process is the flow of information, modified by value-added tasks that begins with the first contact with a prospective client and continues through delivery of a finished product. Well-developed business processes can create a seamless link from initial client interface through the supply chain. Automation of those processes improves the accuracy of the information transferred and ensures the repeatability of the value added tasks performed.

According to Stephen Carson, Executive Vice President of Visibility Corporation, "The decision to invest in business process automation is significant and often part of a project-based manufacturers' lean initiative. ETO companies must consider the value of significantly reducing bidding, engineering, and manufacturing cycle times; reducing product rework; improving customer service and internal communication. There is additional value to the clients of ETO manufacturers when their product is designed precisely to meet customer requirements and is achieved with high quality and delivered on time and within budget. "

Because of the potential risk in underbidding projects with thin margins, knowledge capture and reuse of historical information to fulfill customer-specific orders more accurately and efficiently. Technology solutions for the ETO market must address sales, engineering, and manufacturing to bring the automation process to the point of sale.

Carson noted that, "In addition to engineering automation, effective ETO technology solutions drives engineering innovation as well as integration with the entire enterprise, allowing manufacturers to develop new features and add to their product offerings." This is achieved by:

- Automating repetitive engineering work done for sales teams, including documentation
- Freeing engineers for higher value-added processes
- Capturing design rules to shorten design time
- Allowing more time to evaluate design alternatives, and innovate new products
- Facilitating compliance with company, legislative, industry, quality, and design requirements

- Providing a formal process to capture essential product development knowledge and lessons learned
- Automatically updating all engineering documentation
- Creating the foundation for continuous improvement and following lean principles

Russ Rousseau, of The Jervis B. Webb Company based in Farmington Hills, Michigan noted, "As an ETO Manufacturing and Engineering Company we found substantial improvements and cost savings were gained by working with systems such as VISIBILITY ERP that are focused on the distinctive requirements of the engineering intensive product manufacturer. It has added substantial value, less non applicable overhead and has enabled us to be highly effective."

With nearly 50% of ETO sales now based globally, the capacity to operate in a web-based ERP environment becomes more critical. ETO companies build unique products designed to customer specifications. Each product requires a unique set of item numbers, bills of material, and routings. Estimates and quotations are required to win business. Products are complex with long lead times, typically months or even years. Unlike standard products, the customer is heavily involved throughout the entire design and manufacturing process. Engineering changes are a way of life. Material is purchased not for inventory but for a specific project. All actual costs are allocated to a project and tracked against the original estimate. Once complete, the product is typically installed at the customer's site. In most cases, aftermarket services continue throughout the life of the product. These one-of-a-kind manufacturers are thriving because they recognize the need to implement technology solutions that meet their specific requirements. Generic, off-the-shelf ERP (enterprise resource planning) systems will not work for ETO manufacturers; this is the identical principle of the customized ETO products manufactured.