

The new mantra for ETO manufacturers

Thomas R Cutler discuss the areas of concern for ETO manufacturers
to derive benefits of low cost manufacturing

The relentless pressures on margins and demand for increasing shareholder value do not necessarily deliver improvement in practice. Anticipated margins are eroded, customer service suffers which leads to loss of market share. The urgency to tamp down the costs, confuse many in evaluating the benefits of low-cost manufacturing. Most assessments look at benefits (from the reduction in unit cost) and business transferability (from technical perspective). Yet often, we

overlook the issues created by an extended supply chain. The characteristics of a supply chain incorporating low cost supply sources frequently drive dramatic and unforeseen effects on business performance. Dennis Parass of Burlington, Ontario-based Questica, noted, "Every business needs to improve profits, reduce costs and build better products. We all want to shorten cycle times, manage cash flow, identify profitable products and deliver on time and within budgets. But project oriented ETO

(engineer-to-order) manufacturers have special areas of concern that are critical to their success."

Prospecting for business and accurate estimates

Unlike standard product firms, custom design manufacturers must constantly 'hunt' for new clients and projects. Ensuring that sales staffs are always effective at contact management, gathering application data, using product history, presenting compelling proposals and negotiating for profitable

Half Page AD
RAJMANE

contracts is critical to success. Similarly creating accurate estimates for custom design manufacturers is different because nearly every job needs a special estimate in order to produce a quotation. Creating accurate estimates depends on experienced staff, who can search, find and use the information from previously built jobs. Confidence in the accuracy of estimates is the foundation of a successful contract. Mr Parass also commented, "Modifying existing designs – customising – is far less risky and more profitable than creating a new design – a special one. Unfortunately, ETO companies frequently find that staff cannot find previous designs when needed. Accessing past history not only will improve estimate accuracy and profits but will speed up the order to ship cycle."

Managing projects and jobs and freeing up key staff

Every ETO manufacturer has a host of projects, each containing a number of jobs, moving through the firm at one time. Managing these projects and jobs for small and mid-sized manufacturers is a real challenge because of client change requests, numerous design complications and also staff availability. It is important that these companies have a practical project management system which the staff can use to control the chaos. Custom design firms are particularly dependent on highly skilled and experienced staff. Too often, designers spend a major part of their time performing clerical tasks. Reducing these tasks speeds up the design process and also allows the firm to handle more business with the same staff. Similarly, if Purchasing (which spends 35%-50% of sales income), is freed of paperwork to create

'Requests for Quotations' (RFQ), they can significantly lower material costs.

Minimising the demand for tedious documentation

The need to document is a particular challenge for ETO manufacturers. Not only the proposal and contract process is more complex but, because each new design is a prototype, the importance of ensuring quality is very high. Yet, maintaining a paper-based quality system, such as ISO 9000, can occupy a significant percentage of staff time. Eliminating duplicate data entry and replacing paper based reports with electronic reports are essential to streamline a cost-efficient information system.

Accommodating constant changes in design

Questica's Mr Parass says, "Custom design manufacturers must cope-up with the changing technical requirements that can continue right up to the time of shipment. The need to design, purchase and build at a very fast pace gets complicated with the need to handle frequent design changes and the need to move the design to production in stages, in order to meet delivery dates." The ETO firms that deal with constant changes to the design with minimal impact on timelines or costs are the ones who will have the competitive edge.

Eliminating the Engineering Purchasing bottleneck

Nearly every order starts in Engineering and, to the frustration of the management, seems to stay there far too long. Designers are fearful of releasing Bill of Materials (BOM) information too early because it can create problems for them if the change requests come from the client or the shop. The

result is that Purchasing receives information too late and is unable to purchase in time or at attractive prices. Creating a system that allows designers to create BOMs quickly gives them the confidence to release data frequently, which dynamically integrates with Purchasing and eliminates this bottleneck.

Obtaining timely costing information

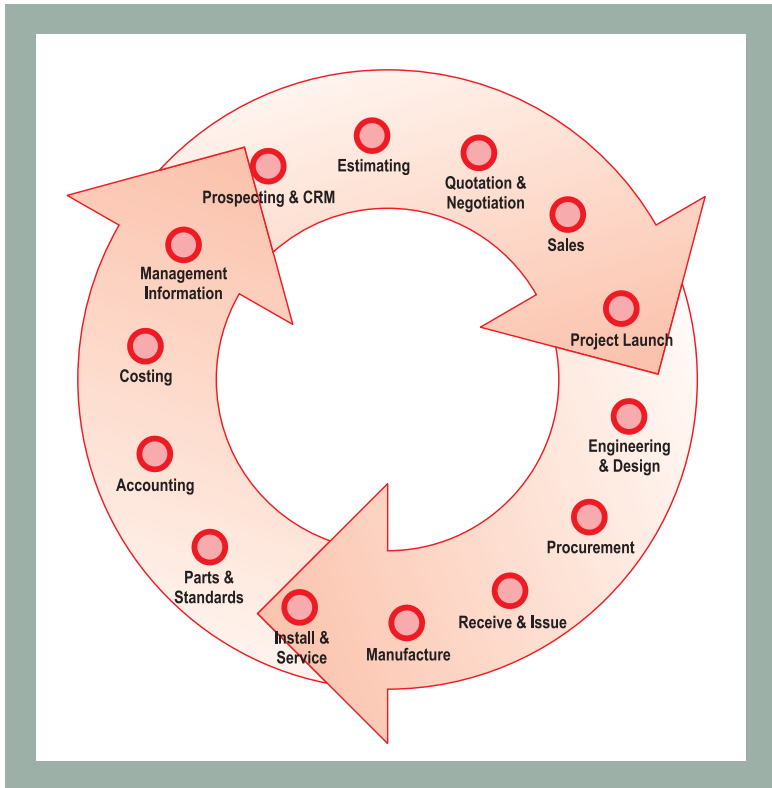
The majority of ETO projects are new designs or modifications of past designs. Each project needs a new estimate. In order to manage each of the projects successfully, the management needs early information on 'cost to estimate' performance. Unfortunately, actual costing is not available until manufacturing is complete, this inhibits management's ability. A system is required that provides 'committed' costing information during production to spot those projects that need special attention.

Technology solutions for low cost ETO manufacturing

Few technology solutions for the ETO process offer design teams outstanding flexibility, power and versatility in creating, modifying and controlling the flow of information to and from Purchasing. Mr Parass urges that the best solutions must integrate the BOM with the most popular CAD packages such as Autodesk Inventor, AutoCAD 2D and SolidWorks, eliminating the need to re-key design data into the business system.

Convenient and technological features for the ETO sector should include the ability to:

- Create RFQ for BOM items
- Issue non conformance
- Record, date and track drawing and documents sent to clients for approval



Receive and issue

Practical real time information for shop planning and management is essential. Manufacturing's workflow queue must track all jobs in actual production against estimate with direct linking to all project information, key documents and technical history. Preproduction reporting on material availability and project schedule reporting on job progress is vital along with advanced assembly management allowing 'on the fly' separation of key assemblies, sub-assemblies or parts for detail tracking of labour and materials. Manufacturing data collection must include materials, labour and shipments tracking. Low cost manufacturing mandates that these ETO technology solutions identify all material costs including non-BOM requisitions, stock pulls, material returns and non-conformances by project, job or assembly. Also required are time and attendance alternatives including simple timecard entry, data collection services and bar code readers. All manufacturing information must be automatically integrated into accounting, costing, payroll and project files. Reports must provide management with clear summary and detailed information on progress and results.

- Revision control and automatic parts summarising
- Designer notifications to Purchasing.

Design staff workload is reduced using standard reports such as a Job Cutting list, BOM Costing, Spare Parts List, Drawing Lists, List of Items with Drawings, Where Used Search, Parts Lead time and others.

Engineering and design is key to low cost manufacturing

Demand for materials from Engineering, the shop or parts and service, must be automatically received to Purchasing without double entry. A customisable single screen work area should provide buyers with a full view of all requests, view item quantity, distribution, available inventory, part lead time, purchase history, required dates, designer alerts and the ability to group and sort by multiple fields (project, job, category, preferred supplier and others). Design

changes that result in negative demand should be displayed for immediate action. Creating RFQ quickly, evaluate bids, issue purchase orders, modify and revise purchase orders, or assign inventory with a few keystrokes generate a lean efficiency. Buyers must have the capacity to purchase parts for single or multiple projects and jobs on a single purchase order, purchase to inventory or to indirect accounts (shop supplies, R&D and MRO).

Mr Parass was quick to point out, "Questica SE simplifies the staging of materials for production. Receiving can quickly view purchase orders, log received parts, generate data and bar code labels, produce quality inspection reports or initiate non-conformance issues." This type of solution provides information to allow purchases received directly to the job to be kitted by assembly. As items are received or issued from allocated inventory, Purchasing is instantly updated on the status of materials by job.

Management information in low cost ETO manufacturing

In the dynamic world of custom design manufacturing, managers need fast access to important information in order to spot problems quickly, analyse operations and make better decisions. The heart of low cost ETO manufacturing is possible when executives have the power of information. 📄

The author is the President and CEO of Fort Lauderdale, Florida-based TR Cutler, Inc, (www.trcutlerinc.com). He can be contacted at trcutler@trcutlerinc.com