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for Affiliates this month in Center research:

R·I·T Printing Industry Center

Digital Integration and the Lean Manufacturing Practices of U.S. Printing Firms

The acquisition of new printing technology in the absence of a disciplined approach to process analysis and sound strategic planning can sometimes lead in the wrong direction—to increased costs and eventual failure. Successful printing companies concentrate on changing their business and manufacturing processes to continuously reduce or eliminate costs that do not contribute to the value of the products and services they sell. They also continually look for opportunities to develop new products and services that leverage the capabilities of new technology.

The best printing companies in the world also understand the real value of print to customers. The ultimate value of print goes beyond the material aspects of the manufactured product. Printed products that are primarily channels of communication between organizations and populations find their ultimate value in the effectiveness of the communication. The value of a printed catalog, for example, is a direct function of the volume and distribution of sales that it generates.

Print customers rightly demand a high degree of service to ensure that their printed products are effective communication tools. The challenge for print providers is to reconcile this demand for ever-improving and innovative service with the need to build efficient manufacturing processes. If a printing company places the prime emphasis on service and neglects to take a disciplined approach to improving the manufacturing efficiencies, the business will not be sustainable long term.

The Rochester Institute of Technology (RIT) research paper, "Digital Integration and the Lean Manufacturing Practices of U.S. Printing Firms" (PICRM-2003-09) by Frank Cost and Brett Daly, reports on current industry knowledge and practice. Printing firms responded to questions in these categories:

1. What are the manufacturing-related problems currently facing the industry and what are the opportunities for improvement?
2. How does current industry practice compare with best practice?
3. How do managers perceive the promise of new technology and management approaches to solving these problems?

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Best Practices

Examples of current best industry practice are the R.R. Donnelley plant in Roanoke, Virginia; Thompson Legal and Regulatory (TLR) in Eagan, Minnesota; and the European packaging converter Van Genechten Biermans n.v. All three companies have taken formalized approaches to building rational manufacturing processes, including the following:

- Use of process performance metrics
- The drive toward Six Sigma quality
- Lean manufacturing
- Customer software development
- Enterprise Resource Planning (ERP)
- Computer Integrated Manufacturing (CIM).

Lean manufacturing, as a structured approach to reducing costs by eliminating waste and non-value-added activity, requires common sense. Although smaller companies may be less likely to take a comprehensive approach to manufacturing cost reduction, they still stand to benefit from a working knowledge of how lean manufacturing practices and computer integration can be put to work in a print-manufacturing context.

Current Status of the Printing Industry

The key manufacturing-related problems for the print providers surveyed were delays due to lack of information, redundancies within information systems, and the relatively large amount of work that needs to be expedited in the production process to meet delivery deadlines. The majority of firms report average run lengths below 10,000 pieces.

Currently, less than 25% of smaller firms (under 50 employees) in the survey have a chief information officer, whereas nearly 60% of larger firms (50 or more employees) do. Approximately 7% of smaller firms and 33% of larger firms have achieved ISO certification. The most common computer-based systems among firms of all sizes are management information systems and scheduling systems.

Only 25% of smaller firms have established cost reduction goals for the future, while more than 65% of larger firms have. Prepress is seen as the area of greatest opportunity for cost reduction. Firms of all sizes believe that there is a gap between what they know about CIM (Computer Integrated Manufacturing), lean manufacturing, competitive benchmarking, quality control/assurance, and specific technologies like JDF, and the importance of these factors to their future profitability.

New technology and management strategies are perceived by both large and small firms to offer the best way to improve operating efficiencies. More than 80% of smaller firms and nearly 90% of larger firms acknowledge the importance of CIM to their future profitability. Firms of all sizes also place a high value on improved information for the sales force.

Conclusion

The primary challenge for the industry remains relentlessly seeking to improve the efficiencies of manufacturing and distribution, while at the same time offering the kind of service

(Web site, publications, general info)

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that will help customers achieve their ultimate goals. This challenge remains a barrier to the implementation of CIM and lean manufacturing in U.S. printing firms.

The lean manufacturing goal of process efficiency is applicable to companies of all sizes. Though smaller companies are less likely to invest time and resources in the comprehensive approach to manufacturing cost reduction than larger ones, they still can benefit greatly from a working knowledge of lean practices in the print-manufacturing context.

2003 Research Monographs:

To read about this research in detail visit: http://print.rit.edu/pubs/picrm200309.pdf

Other research publications of the Center are available at: http://print.rit.edu/research/index_byyr.html

Next Month:

The demand for personalized printed marketing materials is influenced heavily by the corporate marketing executive. Next month we will report on a study investigating their role and influence on variable data printing.