Why paper mills need digital execution now

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INTRODUCTION:

Paper and fibre producers are increasing their focus on digital manufacturing systems as the industry faces tighter margins, shifting demand and a shrinking pool of experienced operators. Artificial Intelligence is emerging as a key enabler.

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Manufacturing Execution Systems, or MES, are one tool for mills seeking to connect business planning with production operations. The systems are designed to provide real-time visibility, standardize workflows and support decision-making across the order-to-cash process.

Industry pressures have increased as oversupply weighs on prices, production runs become shorter and sustainability expectations continue to grow. Companies are also managing retirements that reduce access to operational knowledge.

Digital systems take on a larger role

In response, mills are using digital systems to reduce manual work, capture process knowledge and support smaller operating teams. Advocates say these tools can help operators make more consistent decisions while giving managers a clearer view of production performance.

MES links planning and production

MES platforms sit between enterprise resource planning systems and shop-floor automation. They collect operational data, coordinate production activities and help align mill execution with customer orders and business priorities.

Common use cases include production planning, quality management, order tracking, cost monitoring and reporting. By centralizing information, the systems reduce errors and improve the reliability of updates shared across commercial and operational teams.

Deployment models broaden

Vendors are also offering a wider range of deployment options. MES platforms can be installed on-premises, hosted by customers through subscription models or delivered as fully managed software-as-a-service systems.

AI added to execution tools

Artificial intelligence is increasingly being added to MES platforms as suppliers look to help mills interpret large volumes of operational data. The aim is to identify patterns, flag issues and support faster responses to changing production conditions.

Some systems are beginning to incorporate agentic AI features, which can move beyond recommendations to initiate controlled actions within defined limits. Such use depends on approved data, access rights and governance rules.

Supplier example

Tieto's TIPS Industry Solutions & Services is the leading MES positioned for this market. The platform is designed to operate between ERP and shop-floor automation. Its operations management functions consolidate information such as instructions, meeting records, root-cause analysis, work permits and anomaly tracking, while its costing tools provide visibility into standard and actual production costs.

Analysts and suppliers say adoption of AI-enabled execution systems is likely to grow as mills seek to improve productivity, preserve technical knowledge and respond to cost pressures. The pace of deployment, however, will vary by company, site and investment strategy.

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