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AI-FIRST INTEGRATION: ALIGNING R&D, QUALITY & PRODUCT DEVELOPMENT IN ADHESIVES INDUSTRY

ABSTRACT
The integration of Artificial Intelligence into product development and quality management is no longer a future ambition, it is an operational imperative. Yet for many organizations, the promise of AI remains unrealized, not due to a lack of technology, but due to fragmented, unstructured, and disconnected data. This presentation addresses that gap directly, offering a practical framework for aligning R&D, Quality, and Product Development under a unified, AI-ready data infrastructure.

Historically, these functions have operated in silos: R&D captures formulation data in lab notebooks or ELNs, Quality manages test results in LIMS or spreadsheets, and manufacturing tracks process parameters independently. Each system was designed to solve a specific problem, and often does so effectively within its own domain. The challenge emerges when organizations attempt to derive cross-functional insight or deploy AI across this fragmented landscape. Without a consistent, connected data model, AI models are starved of the signal they need; quality issues cannot be traced back to development decisions; and institutional knowledge remains locked in legacy systems.

Drawing on experience with over 150 enterprise customers across specialty chemicals, pharmaceuticals, food and beverage, and coatings, this session identifies the three most common barriers to AI deployment, insufficient data volume, poor use-case fit, and eroded user trust from premature implementation, and presents actionable strategies to overcome each. Central to this approach is a shift in sequencing: rather than bolting a data model onto existing systems after the fact, organizations are encouraged to define their data architecture first, structuring data at the point of capture to ensure it is granular, machine-readable, and connected across functions.

The session also addresses the human dimension of digital transformation. Technology selection, while important, is rarely the deciding factor in whether an AI initiative succeeds. Change management, including executive sponsorship, early proof points, and sustained user adoption, consistently proves more determinative. Participants will leave with a practical AI readiness assessment framework, a phased roadmap covering data preparation, deployment, and ongoing maintenance, and concrete guidance on how quality functions can evolve from compliance-focused operations into genuine drivers of product innovation and business value.

This presentation is intended for quality leaders, R&D directors, and data strategy professionals seeking to move beyond theoretical AI adoption toward measurable, sustainable integration across the product development lifecycle.