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Digital Transformation and the Biopharma Supply Chains

How platform-agnostic eData enables manufacturers to see more, understand more, and drive more reliable logistical and analytical outcomes from their supplier network.

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The biopharma industry's traditional approach to managing supply chain complexity is not adequately meeting the current and future needs of this growing industry.

Receiving, identifying, testing, and validating raw materials and other manufacturing components taxes logistical teams, who are often faced with collecting supplier data from PDFs, emails, and paper records – labor-intensive work that can add weeks to the lot-release process.

Meanwhile, analytics and process engineering teams face their own challenges. With infrastructure built on the shifting sands of traditional, manual data collection, monitoring critical process steps to prevent out-of-spec situations or looking back to trace the root cause of a quality issue is not always easy or possible.

Exacerbating these internal drivers of supply and production headaches is the external environment: geopolitical conflicts, natural disasters, and unprecedented pandemics have thrown global supplier networks into turbulence.

Now more than ever, this situation must change – not only because existing approaches are failing manufacturers, but because the future of medicine depends on our industry's ability to evolve. Personalized therapies, for example, offer hope to those facing previously incurable disease, but they introduce novel manufacturing challenges related to traceability, scalability, and speed. To transform hope into reality and embrace a new era of therapeutic potential, our industry must adopt equally novel solutions for these challenges. It must transform.

Digital solutions for supply chain insecurity

Behind its reputation as an industry buzzword, the concept of "digital transformation" carries a very real and vital promise. Our industry saw this promise in action during the COVID-19 pandemic, when manufacturers relied on digital solutions to run decentralized trials, accelerate regulatory approvals, and rapidly deliver lifesaving vaccines to a global population. This experience accelerated a shift away from time-intensive processes and toward automated, data-driven manufacturing. Amidst this rapid transformation, though, there's one crucial component still lagging behind: the biopharma supply chain. Chronic bottlenecks caused by raw data collection, manual data entry, and the multiple challenges of antiquated systems are preventing today's manufacturers from unlocking the full potential of digital transformation.

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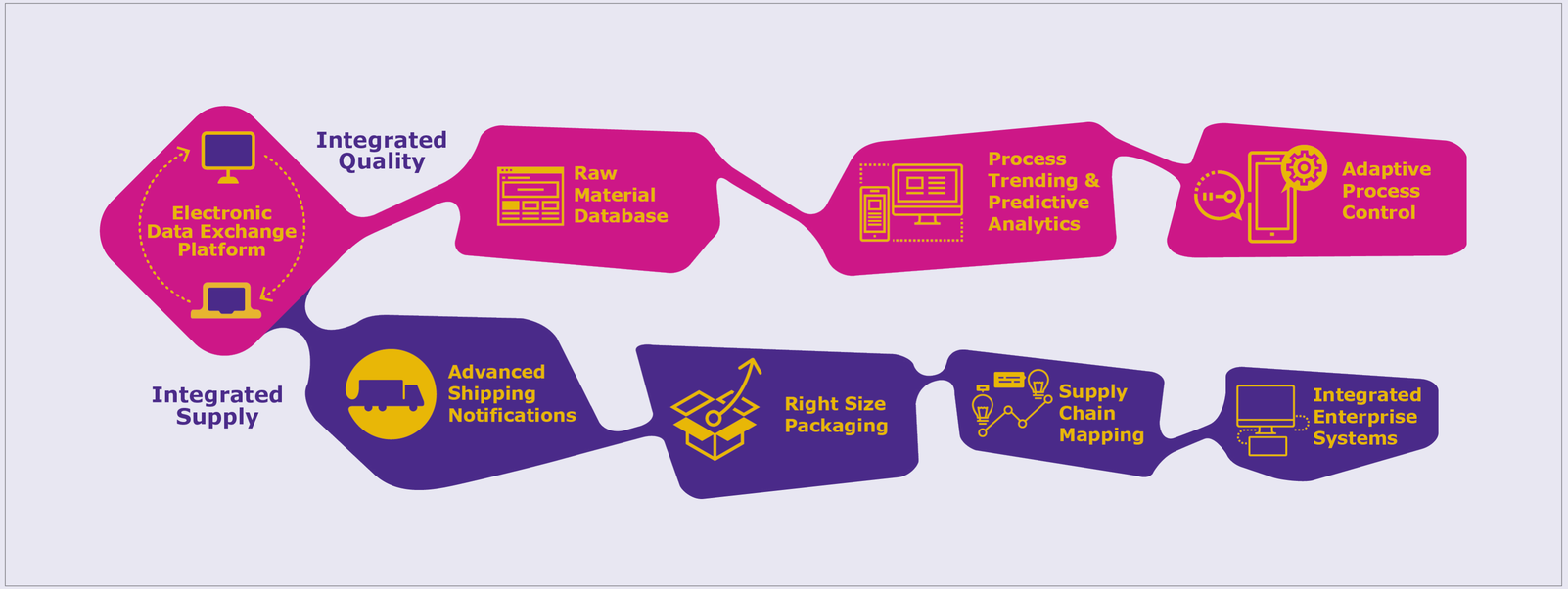

Even before the pandemic, we initiated development of a standardized platform designed to modernize the supplier-customer relationship. The goal is to bring the vision of bioprocessing 4.0 to supply chain logistics and analysis, giving manufacturers the transparency they expect from suppliers in this age of rapid digital transformation. That level of transparency is the key to a flexible, fast-moving, and future-ready manufacturing operation, capable of sustained resilience against the behavior of an unpredictable global supply chain.

What does this future of digitally enabled supply chain transparency actually look like in practice?

- Manufacturers control a single, harmonized data lake.
- Through a secure cloud interface, suppliers push platform-agnostic electronic data (eData) to the manufacturer's data lake. This signals the end of juggling multiple logins for supplier-side portals, playing phone tag with supplier sales teams, or searching email attachments for paper-based records.
- User groups across the manufacturing lifecycle—from production planners to data scientists—have secure, persona-based access to this wealth of integrated and contextualized supplier eData, including certifications, genealogy information, and in-process insights.
- This eData flows up to an ecosystem of logistical, operational, and enterprise-level data, eventually enabling advanced predictive analytics and AI-driven self-correcting process control.

We call this solution the eMERGE™ Program. It's optimized to proactively exchange eData with our customers and enhance their knowledge management approach without ever requiring them to leave their established data ecosystem – and it's poised to digitally transform logistical and analytical processes.

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