OAGi and NIIMBL Announce Release of Biopharmaceutical Manufacturing Ontologies to Advance Interoperability and Analytics

ATLANTA, GA, UNITED STATES, November 19, 2025 /EINPresswire.com/ -- The National Institute for Innovation in Manufacturing Biopharmaceuticals (NIIMBL) and the Open Applications Group, Inc. (OAGi) are proud to announce the release of a groundbreaking set of ontologies designed to enhance data interoperability and analytics capabilities across the biopharmaceutical industry. These ontologies are the result of a collaborative effort within OAGi's Industrial Ontologies Foundry (IOF) among domain experts, standards developers, and leading organizations. They establish a semantic foundation for consistent data exchange, integration, and interpretation.

The newly released ontologies cover core biomanufacturing concepts, including process parameters, equipment, quality attributes, various types of recipes and their components, processing steps, and materials. They are intended to serve as a common reference framework for systems integration, data analytics, regulatory submissions, and digital transformation initiatives across the biopharmaceutical manufacturing value chain.

"Ontologies give us a shared language to structure and contextualize manufacturing data. With this release, we're one step closer to seamless interoperability across our systems, suppliers, and regulators. With this release, we see growing progress toward cross-consortia collaboration to create an interoperable ontology to serve the biopharmaceutical manufacturing industry," said Roger Hart, NIIMBL Senior Fellow and Big Data Program Lead.

"This joint initiative marks a significant milestone in our mission to bring a new, advanced data interoperability standard to bring new values to industries. The ontologies we've co-developed with OAGi and NIIMBL members will empower the industry to create smarter automations, better traceability, and more scalable and reliable analytics," said Boonserm Kulvatunyou, National Institute of Standards and Technology Process Engineering Group Leader and Semantics Interoperability Expert.

"This latest release of ontologies is a significant step forward in establishing industry-wide standards for biopharmaceutical manufacturing digitalization. The enhanced ontology features streamlined conceptual frameworks and refined semantic constructs that dramatically improve usability for ontology specialists and implementation teams," stated Elyse Easson, Director, Commercialization and Digital CMC Value Team, Digital MMD.

The biopharmaceutical manufacturing sector has expressed strong support for the availability of this ontology and the advantages it offers for leveraging data in manufacturing processes.

"This ontology will be beneficial to the development of biopharmaceuticals because it will facilitate communication amongst those with diverse backgrounds. The human-readable aspects of it provide a shared language and reference point for effective communication between organizations. The machine-readable aspects will enable automated organization and visualization of data from disparate sources, a task that is frequently time consuming and performed manually," said Jan Kemper, Associate Principal Automation Engineer at AstraZeneca.

"This latest release of biopharmaceutical manufacturing ontologies is a significant step forward, establishing a shared language for data across the industry. By creating a standardized, streamlined framework, these ontologies provide the clean, well-structured data essential for analytics and AI to thrive. This unification of data from diverse sources not only ensures seamless interoperability but also accelerates insights that improve product quality, yield, and time to market," added Markus Hartmann, Global Product Lead for Data Semantics at MilliporeSigma.

The ontologies are now publicly available under an MIT-style license and are expected to be adopted by technology vendors, regulatory bodies, and biomanufacturing organizations seeking to modernize their data infrastructure and promote digital maturity.

For access to the ontologies and technical documentation, visit https://oagi.org/bmic.

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