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Role of Data in Successful Transition into Bioprocess Industry 4.0 and Cognate Implications for Standardisation, Storage and Repurposing of Data

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Industry 4.0 opens up a new dimension of potential improvement in productivity, flexibility and control in bioprocessing, with the end goal of creating smart manufacturing plants with a wide web of interconnected devices. Bioprocessing involves living organisms or their components to manufacture a variety of different products and deliver therapies and this organic nature amplifies the complexity of the process, hence implementing novel solutions means higher risk and greater investment. In such a climate, utilising the existing information in the best possible way to drive novelty and improvement in biomanufacturing becomes ever more important. A large segment of the industry comprises the manufacturing of biopharmaceuticals and advanced therapies, some of the most expensive deliverables available to date, and these products undergo tightly regulated and controlled steps from product conceptualisation to patient delivery. This implicates the generation and storage of extensive amount of data. Despite this wealth of information, data-driven industry 4.0 initiatives have been unusually slow in some sub-sectors hinting at an often overlooked underlying challenge implicating a bottleneck in the reusability of the collected data. In this talk, some of the challenges around the nature of bioprocessing data, and its collection will be discussed and the potential solutions to overcome such challenges will be highlighted with a specific focus in biomanufacturing new modalities of medicines.

Keywords

bioprocessing, data standardisation, data management

Classification

Both methodology and application

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