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The articles collectively highlight the crucial importance of process mining in various contexts by highlighting innovative approaches in these different contexts:

• The use of LSTM network to improve data quality in data mining, in the context of the challenge of incomplete event logs to accurately predict missing activity tags. Considering that the use of this method of deep learning requires important material considerations, as well as the intervention of imputation algorithms in the case of unknown missing value locations.

• The integration of process mining and deep learning to predict intra-hospital mortality in diabetic patients by transforming electronic health records into event logs adapted to process mining. The contributions of the document include the introduction of a new process mining & deep learning architecture to model historical data from electronic health records of diabetic patients in intensive care units, successfully demonstrating its ability to improve established risk scoring methodologies. The paper also highlights the importance of integrating past patient care flows for predicting outcomes and highlights process mining as a promising tool for future research directions to address specific limitations such as reliability of results.

• The importance of understanding the goals & intentions of individuals in different fields of activity with the proposal of the method "Supervised Map Miner" based on supervised learning and Hidden Markov models, an approach that extracts and models intentions based on activity traces. This approach allows to deconstruct a process, and extract from it, the hidden intentional plans in order to finally model these intentions explicitly. This method, recognized for its explicit nature, goes beyond the simple understanding of the dependence of intentions with the other levels of the project, it will name and model the intentions, clearly and formally so that a human can understand them. In case of non-applicability of this method, due to unknowns’ intentions, it will be necessary to follow a learning method not supervised and ontology for a maximum of explicitation.

• Predictive monitoring of business processes emphasizes potential risk avoidance through a predictive rather than reactive approach such as traditional compliance monitoring approaches. Using various predictive calculation methods, predictive monitoring will predict and provide early guidance that will allow users to redefine and improve the execution of the current process in order to avoid potential risks. There are different types of predictive calculation methods based on event logs, with the objective of predicting boolean or numerical values, categorizing under different approaches such as machine learning, statistical methods, annotated transition systems and hybrid methods.