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Prediction of events in business processes monitoring

The collective texts highlight the pivotal role of predictive event monitoring within business processes, emphasizing its potential to revolutionize operational efficiency, risk management, and decision-making. This predictive capability is enabled by leveraging advanced AI techniques such as deep learning, machine learning algorithms, and Graph Convolutional Networks (GCNs).

In the realm of business process management (BPM), predictive event monitoring entails forecasting various aspects of ongoing processes, including the remaining time for case completion, event types, timestamps, and potential anomalies. By analysing historical event data, these predictive models can anticipate future events, identify potential bottlenecks, and optimize resource allocation.

One key aspect emphasized in the texts is the application of deep learning architectures, such as Long Short-Term Memory (LSTM) networks, to predict event sequences and time-related aspects of business processes. These models utilize techniques like sequence encoding, entity embedding, and feature hashing to capture complex temporal dependencies and patterns within event logs.

Furthermore, the texts explore the challenges associated with predictive event monitoring, including data preprocessing, model selection, and interpretability of black-box prediction models. Techniques like counterfactual explanation generation aim to enhance the understandability of these models by providing insights into why specific predictions were made.

Across various industries such as dam safety management, oil and gas engineering, pandemic control, and commercial processes, predictive event monitoring offers valuable insights for proactive intervention, anomaly detection, and optimization of production plans. As AI technology continues to evolve, businesses can harness predictive event monitoring to gain a competitive edge, mitigate risks, and adapt to dynamic operational environments effectively.