The document introduces the challenge of aligning business processes with information systems, especially noting the issue of workarounds by employees post-implementation. These workarounds, while potentially disruptive, also highlight areas for process improvement. The introduction proposes a novel deep learning method to automatically identify such workarounds in business process event logs, aiming to better integrate organizational routines with business process management efforts.

The theoretical background section delves into the emergence of workarounds in organizations, explaining them as deviations from defined business processes due to various reasons such as troubleshooting, avoiding rules, or mitigating poor information system (IS) design. It highlights the dual nature of workarounds: while they can lead to negative impacts like loss of control or compliance issues, they also offer opportunities for innovation by remedying misfits between IS and business processes. The section further discusses process mining as a method for detecting workarounds, noting its limitations in capturing the complex nature of workarounds and the need for more advanced, machine learning-based techniques to accurately predict and analyze workarounds in event logs.

The "Research Method" section outlines a deep learning approach to identify workarounds in business process event logs. It involves preparing a data set, cleaning it using an autoencoder, intentionally adding workaround data, training a Convolutional Neural Network (CNN) for classification, and finally applying the model to predict workarounds. This method aims to efficiently detect process deviations for potential improvements.

The Deep Learning for Detecting Workarounds in Event Logs discusses a method using deep learning to identify workarounds in event logs by preprocessing data, employing an autoencoder for noise reduction, reintroducing certain noises as workaround indicators, and using a Convolutional Neural Network (CNN) for classification. This streamlined approach aims for automated detection of process deviations, transforming event logs into a deep learning-compatible format and identifying workaround patterns effectively.

The evaluation of the deep learning method for detecting workarounds in event logs was conducted using three real-life event logs focusing on human activities, given their relevance to understanding human behavior deviations like workarounds. The process involved a 10%-90% split of the data for prediction and training/testing respectively, with an autoencoder used to remove noise from 90% of the data. A Convolutional Neural Network (CNN) was then trained on an 80%-20% split of this noise-free data to classify process instances into workaround types. The method's effectiveness was assessed through quality metrics like accuracy, precision, recall, and F1-score across three event logs, showing variable success rates in identifying workarounds, with the best results observed in the bpi2019 log.

The discussion on the document highlights the method's effectiveness in detecting workarounds from event logs, pinpointing the potential of such data in studying organizational routines. It acknowledges varying success rates across different logs, particularly noting the method's high performance with the bpi2019 log. Challenges include the potential for misinterpretation and the difficulty in detecting workarounds in highly variable or less controlled processes. The need for substantial data to train deep neural networks for accurate workaround detection in complex processes is also mentioned.

The conclusion highlights the creation and testing of a deep learning method to detect workarounds in event logs, showing high performance across various metrics. It emphasizes the significance of workarounds in organizations, noting their hidden nature and dual impact on organizational processes.