Summary Business Process Mining

Pinggera et al.'s study on "Styles in Business Process Modeling: “An Exploration and a Model" explores the diverse approaches to business process modelling and the cognitive processes involved in modellers' behaviour. The research identifies three primary styles: functional, semantic, and thematic, each influenced by individual preferences, expertise, and task difficulty. The model takes into account personality traits and task nature, influencing modelling style through cognitive functions like working memory and reflective abilities. It also considers the cognitive load of the task, which influences the association between a person's characteristics and their preferred modelling style. The study emphasises the importance of understanding process modelling in Business Process Management (BPM) and suggests the creation of targeted support tools and instructional materials that align with different modelling strategies. These tools could combine quick development and fine-tuning with layout tasks, while educational programs could be adapted to focus on specific tasks of the modelling approach. The study expands the horizons of business process modelling beyond the outcomes of the modelling procedure, revealing the cognitive and behavioural patterns that determine this procedure. This awareness of PPM provides new ways to improve modelling utilities, model classes, and BPM methods, making them more targeted to the needs of different modellers.

The article "Business Process Model Abstraction Based on Behavioral Profiles" by Sergey Smirnov, Matthias Weidlich, and Jan Mendling discusses the challenge of simplifying business process models through abstraction. The authors propose a new abstraction technique based on behavioural profiles, which allows for the condensing of fine-level activities into coarser, higher-level representations while preserving behavioural integrity. The behavioural profiles are a series of control flow relations that ensure strict order, exclusiveness, and interleaving of activity pairs. This approach allows innovative activities to be aggregated based on their behaviour characteristics rather than their segment within the model. The authors introduce a complex procedure that includes the derivation of the behavioural profile from the detailed process model, which serves as a basis for identifying and classifying similar activities into more abstract and generalised descriptions. The validation of the conceptual framework ensures that the synthesized high-level model aligns with the initial process's behavioural constraints, ensuring its integrity and usefulness in different organisational environments. The authors' approach bridges a significant gap in Business Process Management (BPM) by introducing a more flexible and behaviorally integrated model of process abstraction, which has significant potential for unburdening process model maintenance and providing clearer representation to stakeholders. This technique can significantly impact organizations' management of documenting, analyzing, and refining business processes, improving process visualization, analysis, and optimization.

Kathrin Figl and Ralf Laue's research on business process models (BPMs) provides a deeper understanding of the cognitive challenges individuals face when interpreting complex relationships within these models. The study, which involved empirical analysis of 199 individuals, mainly students, reveals that different categories of cognitive difficulty are involved in process management based on relational dynamics. The duality highlights that some relational structures in BPMs may require a higher cognitive load, affecting the models' overall interpretability. Figl and Laue's Cognitive Load Theory is a crucial feature in their framework, which draws the boundaries of working memory to understand the universal nature of cognitive processing of BPMs. The study also explores the factors affecting cognitive load, such as relationships between model elements, element interactivity, and element separability. This analysis not only enhances our understanding of how people relate to BPMs but also provides knowledge about potential areas for improving the design of models to enhance understandability. The research has practical implications beyond the academic domain, providing valuable information for practitioners and researchers dealing with BPM modelling. By defining cognitively challenging relational constructions and element interactions, the study has the potential to design and present BPM models that reduce cognitive load and enhance model comprehensibility. Methods such as simplification of complex nesting, shrinking of model structures, and employing visual add-ons like syntax highlighting can make BPMs more approachable and understandable.

The paper by Aldin and de Cesare presents a comparative study of business process modelling approaches, a crucial aspect of organizational communication and understanding improvement. The study introduces a framework based on five criteria: adaptability, simplicity, intelligibility, simulation support, and comprehensiveness. This framework helps identify major paradigmatic differences among the assessed techniques and forms a basis for further analysis and selection procedures. The paper highlights the complexity of business process modelling, with numerous modelling techniques targeting different aspects of business processes. The analysis ranges over seven common methods and grades them by set standards. Techniques like flow charts and Petri nets are simple but differ in their support for simulation and flexibility. Advanced techniques like Business Process Modeling Notation (BPMN) offer a rich semantic framework suitable for simulation and supporting all key elements of business process modelling. The paper calls for both academic and industrial exploitation in a comparative study of business process modelling methodologies, as it helps understand how these approaches are used in the course of MDSD and how efficient modelling is in responding to changing service paradigms. The research contributes to the ongoing debate on optimizing business process management and modelling in the context of organizational change and digital transformation.