Can Generative AI Empower Domain Experts in Creating and Redesigning Process Models?

The document explores the potential of generative AI and chatbots, specifically in the realm of business process management (BPM), to assist domain experts in creating and redesigning process models. It investigates the application of conversational process modeling (ConverMod) across various stages of the BPM lifecycle, emphasizing the role of AI-driven chatbots in enhancing process model creation, analysis, and improvement. Through systematic analysis and evaluation methods, including a literature review, test set generation, and both quantitative and qualitative assessments, the study aims to establish a taxonomy for conversational process modeling applications. It assesses the completeness and correctness of process models generated by chatbots using key performance indicators (KPIs) and user surveys. The findings suggest promising avenues for integrating generative AI into BPM, highlighting the efficiency and preference for chatbot-generated models among users, regardless of their process modeling experience.

Insights:

- Generative AI can significantly streamline the BPM lifecycle, enhancing process model creation and redesign.
- AI-driven chatbots show promise in accurately generating and improving process models.
- User preference leans towards chatbot-generated models, indicating a potential shift in process modeling practices.

The Essence:

The essence of Conversational Process Modeling (ConverMod) within the Business Process Management (BPM) lifecycle involves a transformative approach where domain experts interact directly with chatbots to create, analyze, and redesign process models. This methodology seeks to leverage generative AI's capabilities in facilitating a more intuitive and efficient process modeling experience, mitigating the reliance on traditional interactions between domain experts and process analysts or modelers. The BPM lifecycle, as delineated by Dumas et al. (2013), provides a structured framework for examining how ConverMod can be integrated across various process-oriented tasks to generate business value without the employment of additional tools.

ConverMod applications are envisaged across several stages of the BPM lifecycle, including process identification, discovery, analysis, monitoring, implementation, and redesign. Key activities within these stages—such as gathering and preparing process descriptions, generating and assessing process models for quality, and supporting process redesign efforts—are identified as suitable for chatbot support. This support includes tasks like automatic paraphrasing to improve description quality, extracting relevant information from text to create process models, and aiding in the qualitative assessment of models to identify automation opportunities and bottlenecks.

Moreover, the chatbot's role extends to proposing redesign methods and assisting in the refactoring of process descriptions, guided by established process modeling guidelines and smell catalogues. While ConverMod's current focus excludes process implementation and monitoring, future work aims to expand its utility by incorporating additional tools and systems like process engines or process-aware information systems.

The Action Plan:

1. Incorporate generative AI chatbots into the BPM lifecycle to assist with process model creation and improvement.
2. Develop and refine evaluation methods for assessing the completeness and correctness of AI-generated process models.
3. Conduct further research to explore and optimize the integration of generative AI in BPM, focusing on user experience and model accuracy.

Blind Spot:

The study might overlook the potential challenges in implementing AI-driven conversational tools in BPM, such as the need for significant data quality and the complexity of accurately capturing domain-specific knowledge through chatbots.