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Summary of the Systematic Review on AI Methods for Business Processes

Business Process Management (BPM) is a discipline that involves concepts, methods and techniques for designing, implementing, measuring and configuring business processes. Forerunners such as Adam Smith, Frederick Taylor and Henry Ford demonstrated the importance of the division of labour, scientific management and production lines. The advent of the computer age around 1950 marked a major turning point, forcing companies to model inter-organizational processes to exploit the value of data. AI has become critical to automating procedures, providing insights to decision-makers and aligning process goals with those of the business, transforming manual operations into more mature and predictable processes, with highly scalable operations. Investors and business leaders see AI and machine learning as transformational drivers, but executing solutions remains a challenge.

The selected paper presents a systematic literature review on the application of artificial intelligence (AI) methods in business processes, with a focus on process mining and process adaptation.

Business processes (BPs) provide a structure for the interactions of workers and organisations, defined as a series of steps to achieve a specific business objective. BPM combines management and technology to improve these processes, with a lifecycle that includes design, implementation, execution, monitoring and continuous improvement.

Aligning IT with business enables tasks to be performed and information to be generated from data. Business process automation can deliver significant cost savings, but requires adequate organizational support.

It is crucial to distinguish between the terms "method" and "model" for a better understanding. A method is a set of steps for performing a task, whereas a model is a representation. This distinction ensures the reproducibility and robustness of the results.

The journal selected 21 articles, revealing Japan as the main contributor, with 52.4% of the articles in Europe. The fields most covered were computer science (95.2%) and mathematics (47.6%). AI methods were grouped into six categories, from discovery to improvement, offering approaches from process extraction to predictive modelling.

The focus on AI is aimed at improving efficiency, decision-making and resource allocation. Keyword analysis highlighted central themes such as 'artificial intelligence' and 'business process'.

The results indicate a growing trend towards intelligent techniques for business processes, with the potential to use advanced AI techniques such as transformers for business prediction.

In sum, this review provides an overview of AI methods in business processes, encouraging the systematic use of AI and suggesting avenues for future research, such as the development of multi-criteria decision models for business process automation.