## The Ethical Considerations of Business Artificial Intelligence Exploration Through the Lenses of the Global AI Technology Acceptance Model

The study explores the ethical dimensions of incorporating Artificial Intelligence (AI) technology in business contexts, using the Global AI Technology Acceptance Model and Innovation Resistance Theory. It aims to understand factors influencing AI adoption and address ethical concerns in AI development and deployment. Emphasizing the need for responsible AI usage amid rapid technological advancements, it discusses innovation's historical context and its significance for organizational survival, citing examples like Xerox and Netflix. Various innovation models and the importance of innovation management are examined, with a focus on IT investment strategies. The paper concludes by highlighting the correlation between effective innovation management, organizational performance, and the potential for AI-driven innovations to foster positive social change.

## Real-time tracking of renewable carbon content with AI-aided approaches during co-processing of biofeedstocks

The abstract introduces a new approach to estimating renewable carbon content in co-processed fuels in real-time, leveraging interpretable deep neural networks, robust linear regression, and bootstrapping techniques. This method, based on a large dataset from refineries, aims to support the decarbonization of the oil refining industry, offering potential cost savings and aiding the transition to sustainable energy.

The introduction discusses the significance of decarbonization and the role of co-processing bio feedstocks in reducing emissions. It highlights the limitations of current techniques and the potential of AI technology for real-time monitoring.

The study outlines theoretical innovations, dataset contributions, and practical implications. It stresses the integration of AI and robust regression for accurate estimation and the value of the extensive refinery dataset for informing decision-making.

Detailed sections cover co-processing at the FCC, AI for renewable carbon tracking, data gathering, and preprocessing. The conclusion emphasizes the method's efficiency and accuracy in estimating renewable carbon content, offering substantial cost savings for refineries.

## Towards Green AI. A methodological survey of the scientific literature

The paper explores the concept of "Red AI" and "Green AI," contrasting their environmental impacts. Red AI consumes high energy, while Green AI focuses on efficiency and sustainability. Factors contributing to Red AI include computer architectures and algorithms. Methodologies for surveying literature on both Red and Green AI are proposed, emphasizing the importance of balancing AI

performance with environmental concerns. The study highlights the need for environmentally conscious AI development.

Verdecchia et al. survey the landscape of Green AI, emphasizing environmentally conscious development and IEEE standards. Salehi et al. stress the need for data benchmarks, Siegmund et al. propose energy-saving techniques in software systems, and Gutierrez et al. discuss balancing operational requirements with energy efficiency in ML models.

It discusses algorithms and techniques to reduce the computational complexity of deep learning models, focusing on distillation, residual connections, depthwise separable convolution, weight sharing, acceleration techniques, parameter pruning, and mini-batch stochastic gradient descent. It examines the environmental impact of models like BERT, GPT, PaLM, and BigGAN.

Optimization techniques in Green AI include distributed training, transfer learning, progressive learning, mixed precision training, sparsity models, model compression, and knowledge distillation. These methods aim to reduce training time, optimize resources, and minimize energy consumption while maintaining model performance.

## Artificial intelligence and corporate carbon neutrality: A qualitative exploration

The study delves into how firms utilize Artificial Intelligence (AI) to achieve Corporate Neutrality (CN) targets, uncovering four key dimensions: implementation, trade-offs, impediments, and impact.
In terms of implementation, firms employ AI for emission control, process optimization, and resource conservation, showcasing its transformative potential in driving sustainability. However, navigating trade-offs between financial viability, governmental support, and social considerations poses challenges for firms adopting AI for CN. Impediments like organizational culture, resistance to change, and data security concerns hinder seamless AI integration, requiring proactive strategies. Despite challenges, AI adoption yields tangible benefits, enhancing business efficiency and facilitating CN target attainment. The proposed convergence-divergence model offers a comprehensive framework for understanding AI's role in CN, guiding both research and practice. Practical recommendations include advocating for government funding, addressing stakeholder resistance, and prioritizing skill development. While the study provides valuable insights, limitations such as sector-specific insights and hypothesis testing suggest avenues for future research to refine our understanding of AI's impact on CN targets.