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

The study delves into the ethical considerations surrounding the exploration of Artificial Intelligence (AI) technology in business contexts. It utilizes the Global AI Technology Acceptance Model and Innovation Resistance Theory to understand the impact of AI on ethical concerns. Through analyzing these frameworks, the paper aims to provide insights into factors influencing AI adoption and address ethical considerations in AI development and deployment. It highlights the importance of responsible and ethical AI usage given the rapid technological advancements and potential societal impacts.

The introduction discusses the AI technology acceptance model, which focuses on perceived usefulness and ease of use, and the innovation resistance theory, which explores why consumers resist new innovations. It defines innovation and its historical context, emphasizing its importance for organizational survival and growth. Several examples, such as Xerox, Adobe, and Netflix, illustrate successful innovations and their impact.

The paper also discusses different models of innovation, including open, closed, disruptive, and free innovation, along with innovation management and its significance for organizations. It examines the adoption of innovation and investment strategies, particularly in IT, and how they influence organizational performance. The innovator's method, which outlines steps for successful innovation implementation, and consumer acceptance of innovation, are also explored.

The conclusion emphasizes the correlation between innovation management and organizational performance, suggesting that investing in AI technology and innovative initiatives can support long-term sustainability and improve organizational performance. It highlights the potential for positive social change through management innovation, promoting professional development, job opportunities, and competitiveness within industries. Additionally, it suggests that organizations without formal innovation management structures can still succeed by understanding consumer acceptance of innovation.

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

The abstract introduces a novel approach utilizing data-driven methods to estimate the renewable carbon content of co-processed fuels in real-time, aiming to aid in decarbonizing the oil refining industry. This method involves using interpretable deep neural networks, robust linear regression, and bootstrapping techniques with a large dataset collected from refineries. The study proposes significant contributions to accurately quantify renewable carbon, potentially saving refineries millions of dollars annually and facilitating the transition to a more sustainable energy system.

The introduction highlights the importance of decarbonizing the economy and the challenges posed by fossil fuel dependence. It discusses the role of co-processing bio feedstocks in oil refineries as a strategy

for reducing carbon emissions. The need for accurately tracking the renewable content of fuels resulting from co-processing and the limitations of current techniques are addressed. The emergence of artificial intelligence (AI) technology is presented as a potential solution for real-time monitoring and prediction in complex industrial processes like co-processing.

The study details the theoretical innovations, dataset contribution, and practical implications of the proposed approach. It emphasizes the integration of AI, interpretable deep neural networks, and robust linear regression for accurate estimation of renewable carbon content. The dataset collected from refineries is highlighted as the largest of its kind, providing valuable insights into various operational conditions. The practical implications include cost reductions for refineries and informed decision-making for policymakers and stakeholders in the renewable energy industry.

Sections on co-processing at the FCC, AI for renewable carbon tracking, data gathering, and preprocessing provide detailed insights into the methodology and application of the proposed approach. The conclusion summarizes the study's contributions, emphasizing the efficiency and accuracy of the proposed method in estimating real-time renewable carbon content, thereby potentially saving millions of dollars for oil refineries annually.