The Impact of In-Vehicle Safety Technologies on Road Accident Rates: A Study of the Moshi Municipal Council

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Abstract

This study investigates the relationship between the adoption of in-vehicle safety technologies and the frequency of road accidents in the Moshi municipal council, Tanzania. The study was grounded on the human factors theory, which provided a framework for understanding drivers' attitudes, intentions, and behaviours towards safety technologies. A pragmatic research philosophy was adopted, using a mixed-methods research approach and a descriptive research design. The study was conducted in the Moshi Municipal Council, with a sample of 204 respondents and 20 traffic safety experts, selected through purposive and stratified random sampling techniques. Primary data were collected through questionnaires and interviews, while secondary data were obtained via document review. Quantitative data were analysed using descriptive and inferential statistics with SPSS v.26, including measures of central tendency and correlation analysis, whereas qualitative data were analysed using content analysis. Findings showed a significant relationship between the adoption of safety technologies and a lower frequency of road accidents. The study concluded that in-vehicle safety technologies effectively reduce accidents, but adoption is constrained by financial, technical, and informational challenges. Recommendations include promoting awareness programs, facilitating adoption through incentives, and partnerships. This study suggested that future research should investigate the effectiveness of government policies and regulatory frameworks in promoting the use of in-vehicle safety technologies. *The African Conference of Applied Informatics,* 2025

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