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Improving Public Sector Budget Quality through Technology Infrastructure in Nigeria

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Abstract

This study empirically examined the effect of technology infrastructure on improving public sector budget quality in Nigerian federal ministries, focusing on cybersecurity measures, software applications (GIFMIS, TSA, IPPIS), and ICT training and capacity building on expenditure control and monitoring. Despite significant investments in digital tools, persistent lapses in expenditure control and monitoring remain prevalent in Nigeria's federal ministries, with continued reports of delayed disbursements, phantom expenditures, and weak financial tracking mechanisms. Using a survey research design, data were collected from 420 finance personnel, ICT staff, budget officers, and senior management across selected federal ministries through structured questionnaires rated on a five-point Likert scale. Multiple regression analysis via SPSS version 29 was employed to analyze the relationships between the variables. The findings revealed that cybersecurity measures emerged as the most influential factor ($\beta = 0.539$, $p = 0.000$), followed by software applications including GIFMIS, TSA, and IPPIS ($\beta = 0.487$, $p = 0.000$), and ICT training and capacity building ($\beta = 0.441$, $p = 0.000$). Collectively, these three variables explained approximately 69% of the variance in expenditure control and monitoring performance ($R^2 = 0.691$). The study concludes that integrated technology solutions combined with human capacity development are vital for achieving effective public financial management, accountability, and fiscal discipline. The research contributes empirical evidence on technology-driven expenditure control mechanisms in developing country contexts and provides practical implications for evidence-based policy formulation in public financial management reform initiatives.

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