

A Scoping Review of Robotics and Automation Applications in Uganda's Manufacturing Sector: An African Perspective, 2014

R, u, t, h, N, a, l, u, l, e, ,, M, o, s, e, s, K, a, t, o, ,, P, a, t, i, e, n, c, e, N, a, l, w, o, g, a, ,, J, u, l, i, u, s, O, k, e, l, l, o

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| Abstract

The adoption of robotics and automation is a transformative force in global manufacturing. However, its integration within African industrial contexts, such as Uganda, remains poorly documented and understood. This scoping review maps the extant literature on this subject from an African perspective. This study aims to systematically map the evidence concerning robotics and automation applications within Uganda's manufacturing sector. Its objectives are to identify the technologies in use, describe their principal applications, and synthesise reported benefits, challenges, and gaps in the literature. A scoping review was conducted following established methodological frameworks. A systematic search was performed across relevant academic databases and grey literature sources. Identified records were screened for relevance, and data from included sources were extracted and analysed thematically. The available literature is limited. Identified applications are predominantly confined to repetitive, high-volume tasks, notably in packaging and palletising. The most consistently reported barrier to adoption is the high initial capital investment required. Other noted constraints include unreliable infrastructure and a shortage of technical skills for operation and maintenance. The evidence base for robotics and automation in Ugandan manufacturing is nascent. Current deployments are narrow, focusing on discrete productivity gains. The sector's progression is hindered by

significant financial, infrastructural, and human capital challenges, indicating a substantial gap with broader global manufacturing evolution. Future research should develop empirical, sector-specific case studies to deepen understanding. Policymakers could investigate targeted financial mechanisms and technical training initiatives. Industry stakeholders should consider collaborative models for technology procurement and local adaptation. Robotics, Automation, Manufacturing, Uganda, Industrial Development, Technology Adoption, Scoping Review This review provides a foundational mapping of the current landscape and knowledge gaps, offering a structured point of departure for researchers, policymakers, and industry practitioners engaged in technological advancement within Uganda's manufacturing sector.
