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# Towards Explainable AI(xAI): Determining the Factors for Firms' Adoption and Use of xAI in Sub-Saharan Africa

TREO Talk Paper

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## Abstract

AI has been described as a 'black box', suggesting that the internal algorithmic computations for arriving at the results they provide are very opaque (Rai, 2020). A multifaceted definition of xAI is given by Doran, Schulz and Besold (2017) to be "opaque technologies that offer no explanation into their algorithmic mechanisms; interpretable systems where users can mathematically analyse its algorithmic mechanisms; and comprehensible systems that show symbols which explain to users how a conclusion is reached"(p.1). There are existing studies (e.g. Holzinger, 2018) on how AI technologies are leveraged to make more informed and faster decisions by firms. However little empirical research exists on the "explainability" factors of such AI technologies that motivate their adoption by firms. This is especially needed in Sub-Saharan Africa (SSA) where the use of AI adoption is growing rapidly but regulation is still underdeveloped.

To this end, this research seeks to uncover the nature of explainable AI adoption by firms in SSA. It also takes interest in the factors that determine firms' adoption of xAI, bearing in mind that the 2018 European General Data Protection Regulation (GDPR 2016/679 and ISO/IEC 27001) makes black-box AI difficult to use in businesses if the AI technology is unable to explain the processes leading to the decisions they make. This exploratory study will use a conceptualized Technology-Organization-Environment (TOE) framework to provide an understanding of what motivates firms to adopt xAI technologies. The study will be an exploratory qualitative case study of a firm in Sub-Saharan Africa.

The contributions of this study are expected in three (3) strands: academic *scholarship*, *practice*, and *policy*. Regarding scholarship discourse, the development of AI research, like other fields of study, requires theorization and the development of a conceptual framework. Hence, the proposed framework will present an encompassing view of xAI adoption and the research could help improve on the existing framework (TOE) as the main guide for carrying out the research. From a practitioner perspective, understanding the nature of AI adoption will help guide professionals, especially developers, on the helpful steps to take when developing AI technologies, to meet the factors promoting adoption. From a policy perspective, this research could also provide useful findings for governments as well as other regulatory bodies to formulate policies and laws to govern the adoption and use of AI.

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