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**Raju, Ralph A**

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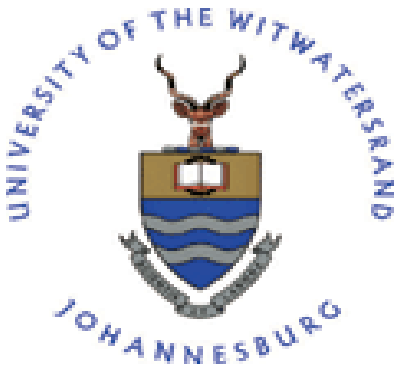


# Comparison of the Business Case between Explosives and Non-Explosives Mining Methods for Underground Platinum Mining Projects

***Ralph A Raju***

Student number: 1033198

School of Mechanical, Industrial and Aeronautical Engineering

University of the Witwatersrand

Johannesburg, South Africa.

**Supervisor: Dr Bruno Emwanu**

A research report is submitted to the Faculty of Engineering and the Built Environment, University of the Witwatersrand, in fulfilment of the requirements for the degree of master's in engineering.

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## Declaration

I declare that this research report is my own work, except in those areas where it is clearly stated. It is being submitted for the degree of master's in engineering at the University of Witwatersrand. It was not submitted before for any degree or examination at any other University

Signed…….

Date…….10 April 2021

## Abstract

The scope of this study is to detail a methodology that could be adopted to determine the economic value of introducing non-explosive mining technology in deep level platinum underground mines. In so doing this study also illustrates a new and novel approach to investment risk analysis and reduction when considering investment in new technology mining projects. The study will highlight the complexity of building financial models for mining projects and the strong link between financial modelling and mine design, scheduling and planning. It also highlights the value that simulation can add to the process of risk reduction early in the mine planning process ultimately leading to improved investment decision making when considering new technology for rapid access and rapid mining systems.