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DETERMINANTS AND IMPACTS OF SUSTAINABLE PUBLIC FUNDING INTO SPACE SCIENCE AND TECHNOLOGY IN LESSER DEVELOPED ECONOMIES: A CASE STUDY OF THE SQUARE KILOMETRE ARRAY IN SOUTH AFRICA AND THE AFRICAN COLOCATION PROGRAMME PARTNERS

Abstract

It has been widely asserted that public sector investments into science and technology promote broad socioeconomic development. Most developing countries with emerging national space science programmes cite this as one of the reasons for their pursuit of such programmes. A positive correlation has been established between technological growth and economic growth in developed nations, but such a correlation has only been assumed in less developed countries (LDCs).

This study models public sector investment into space science and technology, and the resulting socioeconomic impacts in developing countries. This model is being developed to provide governments with a practical tool to plan sustainable interventions.

Consequently, this research aims to identify the determinants of sustainable public funding into science and technology within developing countries in order to drive economic growth. Based on this, it is hypothesised that there are minimum threshold levels of economic, political and technological factors within LDCs, below which technology is not a driver of economic growth.

The case study for this research is the Square Kilometre Array (SKA) in South Africa and Australia for comparison. South Africa will be host to the largest space science project in Africa. This research examined this mega science intervention and the resulting impacts with respect to social, economic, industrial and human capital development. For comparison, other mega science projects have also been examined, both those that were successful and those that failed.

In addition to this, The South African SKA Project is driving the African VLBI Network (AVN) with differing levels of progress and benefit in each African Partner Country (APC).

Achieving the research objectives required the selection of indicators from quantitative data to model economies, as well as the use of qualitative indicators to reflect issues pertaining to developing economies, such as regulatory predictability and fairness, corruption, political agendas, socioeconomic transformation and so on.

The selected variables were chosen to represent the economy of an LDC in terms of its unique political and economic status as well as its level of technology and knowledge.

The aim is reliably to determine the economic growth potential to be gained from public investment into space science and technology programmes, and the sustainable level and nature of investments that would optimise these benefits.