

Title: The state of radio frequency spectrum management reforms and the mobile broadband industry in the SADC region.

## Abstract

Spectrum management reforms involve a departure from state-commanded administrative methods to market-driven property rights and or technology-enabled spectrum commons. This study explores spectrum management reforms that have been undertaken in the last decade, between 2006 and 2016, in the Southern African Development Community (SADC) region, with specific focus on the mobile broadband (MBB) industry. As a result, only spectrum bands allocated to terrestrial mobile and identified for International Mobile Telecommunications (IMT) by the International Telecommunication Union (ITU) in ITU Region 1 (Europe, Middle East and Africa) were considered.

The purpose was to firstly analyse the progress thus far in reforming spectrum management practice in the region and secondly to critically analyse the effects of these reforms on the MBB industry in SADC within the framework of high demand for more spectrum as the cornerstone for rapid diffusion of MBB. Using a constructivist case study methodology, qualitative research was conducted in three SADC countries, namely, Botswana, Zambia and South Africa, representing small, medium and large markets respectively. The study draws on published documents such as policies, legislation, regulations and directly from individuals tasked with spectrum management in public and private sector organisations in these countries.

The findings reveal that several market-driven reforms such as technology and service neutrality, spectrum re-farming and administrative incentive pricing (AIP), together with technology-enabled reforms such as commons or license-exempt spectrum for MBB technologies are all becoming widespread in the region. However, secondary trading and auctions have been stillborn concepts, partly due to market concentration concerns and appropriateness issues. The artificial scarcity of MBB spectrum supply in SADC is laid bare against a backdrop of general scarcity for demand and a discord over how this spectrum should be assigned and to whom. Vast amounts of allocated mobile spectrum in SADC lie fallow or are encumbered by other services such as broadcasting or at times are historically assigned to Fixed Wireless Access (FWA) applications.

Analysis of the data from these three country case study provides insights that may be relevant to many other countries in the region. In conclusion, the study advances that the implementation of spectrum management reforms should be nuanced as these can impact, positively or negatively, on the distributive agenda of government. This research further advances knowledge by positing a novel conceptual framework for spectrum management reform based on the finding that the latter is not a binary exercise of a departure from administrative approach to either a market-driven or a technology-enabled one. However, spectrum management reform can be a continuum on which different elements of administrative, market-driven and technology-enabled approaches can be applied to varying degrees, depending on the respective country's context.