IDENTIFYING BARRIERS AND PATHWAYS TO SUSTAINABLE MIXED REALITY SIMULATION FOR THE MINING INDUSTRY

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ABSTRACT

21st Century mining is a complex pursuit. Stakeholders must manage many interconnected processes and data sets to ensure an operation is sustainable. Mixed Reality (MR) simulation may present an opportunity to improve knowledge and understanding of mine operations via a digital twin. Current and future personnel can model and make predictions using past, current and future data sets. However, MR is still an uncommon tool in the mining industry. This paper asks why that is the case, what some common barriers may be to MR adoption, and presents a possible collaborative solution to make MR sustainable as the technology gains hold and becomes commonplace in mine operations and elsewhere. Specifically, the paper covers issues such as: the limited application of MR simulation; the focus on lower impact VR, AR and MR applications, as opposed to more strategic operational activities; the need to consider human factors when developing MR tools; the impact of the internet of things; practical aspects of technical development and the need for automation in content production. The concept of a road map is introduced, that may help industry navigate the development, adoption and sustainable integration of MR via industry, academia and peak body collaboration.