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A FRAMEWORK FOR DESIGNING A DATA-CENTRIC AND SYSTEMATIZED DECISION MAKING UNIT (DMU) FOR SUSTAINABLE SPACE INVESTING

Abstract

Recently, commercial space investors have been seen to have shifted their focus towards ********** enabled decision-making strategies.********** Moreover, there is also a notable increase in prioritizing the importance of evaluating a space startup's sustainable strategies over their profitability in making investment decisions. However, nature of available data about startups varies significantly, making evaluation process for investors highly unsystematized. Thus, investors often resort to different evaluation techniques for every startup being considered. This creates impracticality and lack of scalability in terms of investment decision-making. Additionally, designing an objective method of evaluating sustainability strategies is challenging resulting to decision-makings relying on just pseudo-indicators which can be highly variable.

To address these challenges, this paper puts forward a design framework to operationalize data and systematize evaluation frameworks. This is foreseen to allow decision-makers to make well-informed and sustainable investments in space startups. The main components of the framework are (a) data acquisition, (b) sustainability strategy evaluation, and (c) decision-making framework. Data acquisition describes the process in identifying relevant and multi-dimensional data sources, in standardizing data collection, and in enable uniform evaluation across startups. Sustainability strategy evaluation component focuses on designing metrics and indicators for evaluating strategies in business and technology. Finally, with the decision-making component, decision rules are designed with guidelines to enable investors execute the informed investment decisions.

The proposed framework was validated through a case study that involved interviews with space investors and a sample of space startups. The results indicate that the framework can systematize the evaluation process and enable objective evaluation of sustainable space startups. The framework can also identify gaps in a startup's sustainable strategy and guide them towards a more sustainable approach.

The paper proposes a design framework to systematize the investment evaluation process, to enable objective evaluation of sustainability strategies, and to operationalize the framework for informed investment decisions towards a truly sustainable space ecosystem.