

## Development of a Roadmap for Assessment the Sustainability of Buildings in Saudi Arabia Using Building Information Modeling

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**Abstract :** Achieving environmental sustainability is one of the important issues considered in many countries; vision. Green/Sustainable building is widely used terminology for describing a friendly environmental construction. Applying sustainable practices has a significant importance in various fields, including construction field that consumes an enormous amount of resource and causes a considerable amount of waste. The need for sustainability is increased in the regions that suffering from the limitation of natural resource and extreme weather conditions such as Saudi Arabia. Since buildings designs are getting sophisticated, the need for tools, which support decision-making for sustainability issues, is increasing, especially in the design and preconstruction stages. In this context, Building Information Modeling (BIM) can aid in performing complex building performance analyses to ensure an optimized sustainable building design. Accordingly, this paper introduces a roadmap towards developing a systematic approach for presenting the sustainability of buildings using BIM. The approach includes set of main processes including; identifying the sustainability parameters that can be used for sustainability assessment in Saudi Arabia, developing sustainability assessment method that fits the special circumstances in the Kingdom, identifying the sustainability requirements and BIM functions that can be used for satisfying these requirements, and integrating these requirements with identified functions. As a result, the sustainability-BIM approach can be developed which helps designers in assessing the sustainability and exploring different design alternatives at the early stage of the construction project.

**Keywords :** green buildings, sustainability, BIM, rating systems, environment, Saudi Arabia

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