

## INTISARI

*Building Information Modeling* (BIM) dan *Geographic Information System* (GIS) merupakan dua inovasi sistem digital yang banyak diterapkan di sektor *Architecture, Engineering, Construction, and Operations* (AECO). Pengembangan integrasi BIM dan GIS sangat diperlukan dalam pengelolaan gedung dan infrastruktur. Integrasi ini bermanfaat untuk operasional dan pemeliharaan gedung. Namun, terdapat tantangan dalam transformasi dan kolaborasi data. Tujuan penelitian ini yaitu mengusulkan kerangka integrasi BIM-GIS berdasarkan literatur dan implementasinya dalam aplikasi, menjaring kebutuhan pemangku kepentingan/ *stakeholder* terhadap informasi pengelolaan gedung, dan mengukur penerimaan *stakeholder* terhadap aplikasi integrasi BIM-GIS.

Studi ini mengusulkan kerangka kerja (*framework*) praktis dan aplikasinya untuk manajemen gedung berbasis website yang dikembangkan dengan mengubah data BIM Revit ke dalam lingkungan GIS menggunakan teknologi terbaru dari ArcGIS. *Focus group discussion* (FGD) dilakukan untuk menjaring kebutuhan *stakeholder* dan penerimaan teknologi. Penerapan integrasi ini menggunakan studi kasus Gedung Pusat Pengujian dan Pengembangan Inovasi (P3I) UGM.

Berdasarkan kuesioner terbuka yang telah dikategorisasikan dan diurutkan berdasarkan frekuensi pembahasan, tiga kebutuhan teratas *stakeholder* gedung P3I adalah Pemantauan Digital/ Online dan *Realtime* (X1), Beragam standar dan prosedur operasional (X2), dan Sistem informasi yang ramah pengguna berbasis website (X3). Dimensi sistem informasi yang perlu ditingkatkan dalam pemanfaatan aplikasi ini yaitu *Reliability* (Y1), *Support* (Y3), *Security and Privacy* (Y4), dan *Technical* (Y8). Integrasi BIM-GIS berbasis website yang dikembangkan dianggap mudah dan mampu memenuhi kebutuhan manajemen gedung namun diharapkan dapat diintegrasikan dengan basis data aplikasi lainnya.

Kata kunci: Pengelolaan Gedung, BIM-GIS, *framework*, ArcGIS Online, Website

## ABSTRACT

*Building Information Modeling (BIM) and Geographic Information System (GIS) are two digital system innovations that are widely applied in the Architecture, Engineering, Construction, and Operations (AECO) sector. The development of BIM and GIS integration is very much needed in the management of buildings and infrastructure. This integration is useful for building operations and maintenance. However, there are challenges in data transformation and collaboration. The objectives of this study, namely proposing a BIM-GIS integration framework based on the literature and its implementation in the application, capturing the needs of stakeholders/stakeholders for building management information, and measuring stakeholder acceptance of the BIM-GIS integration application.*

*This study proposes a practical framework and its application for website-based building management, developed by converting Revit BIM data into a GIS environment using the latest technology from ArcGIS. Focus group discussions (FGD) were conducted to capture stakeholder needs and acceptance of technology. The application of this integration uses a case study of the UGM Center for Testing and Innovation Development (P3I).*

*Based on an open questionnaire that has been categorized and sorted based on the frequency of discussion, the top three needs of P3I building stakeholders are Digital/Online and Realtime Monitoring (X1), Various operational standards and procedures (X2), and a website-based user-friendly information system (X3). The dimensions of the information system that need to be improved in the use of this application are Reliability (Y1), Support (Y3), Security and Privacy (Y4), and Technical (Y8). The website-based BIM-GIS integration that was developed is considered easy and able to meet the needs of building management but is expected to be integrated with other application databases.*

*Keywords: building management, BIM-GIS, framework, ArcGIS Online, website*