GIS and BIM integration for 3D modeling for smart cities

Introduction:

Demands for three-dimensional GIS modeling are increasing rapidly with the new evolving and supporting technologies for various applications. It is charting the new trend for our Geo-Spatial community. Three-dimensional modeling is the true Simulation of Reality, especially if it is relatively accurate. On the other hand, using 3D modeling in GIS environment offers a flexible interactive system for providing the best visual interpretation, planning and decision-making process. The built 3D models are becoming one of the most efficient technologies for spatial data management and analysis.

BIM (Building Information Modelling) has been around since the 1970s. The early BIM information technology industry tended to focus on the paper documentation that drove construction and design processes, resulting in computer-aided drafting (CAD) products that helped users create drawings. The architecture and engineering industries are moving beyond drawings toward 3D models with project-centric attribution as the focal point of communication during construction and design. They are now focusing more on BIM, an information-rich approach that attempts to capture project details in a robust model that may include graphics about the designed real-world asset along with rich metadata for purchasing, scheduling, and even simulation of how assets may behave in their environment after construction. BIM has become the process for increasing efficiency and saving costs through collaboratively creating and using detailed information about built assets throughout their life cycle.

BIM and GIS together have the potential to lead to smarter outcomes for communities and more efficient projects for services providers. This will require more than just the collaboration of software vendors.

Objectives:

- Learning the concept of GIS and relation with BIM.
- Learning the methodology to convert 2D for 3D using GIS.
- Work deeply in case study for (New Aswan City as a high potential as a smart city)

Required skills:

- Learn the modelling using ARC GIS or QGIS software packages.
- Work intensively for integration between the concept of GIS, 3d modelling, and BIM.
- High motivated students are required.

http://duspviz.mit.edu/tutorials/creating-3d-site-model-gis/

https://www.esri.com/about/newsroom/arcuser/gis-and-bim-integration-leads-to-smart-communities/

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