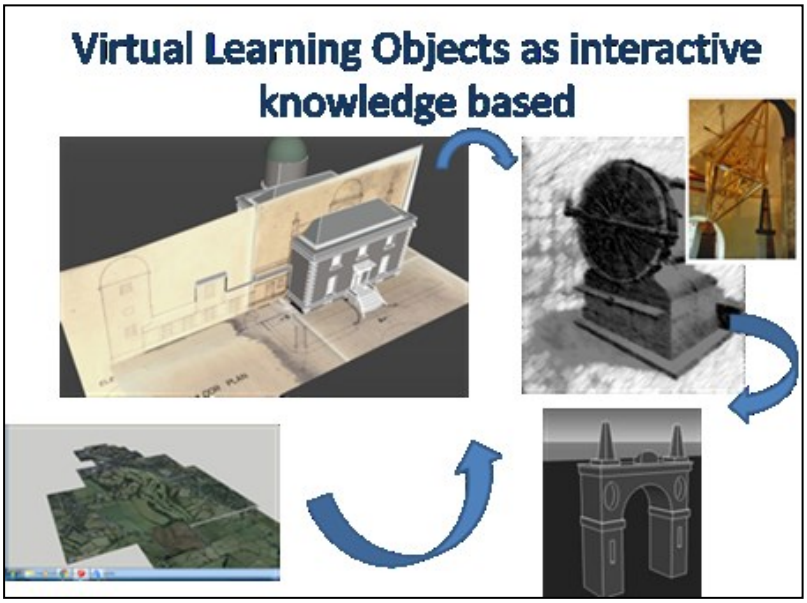
Combining Historic BIM and game engine platforms for archaeology and architectural heritage

Dr Maurice Murphy: Director, VBE Lab, Dublin Institute of Digital Technology

The aim of this paper is to present a conceptual design for combining Historic Building Information Modelling and game engine platforms for presenting and analysing archaeology and architectural heritage. Game engines can be applied to make two major contributions to architectural conservation: they can allow a low-cost method of making an HBIM model more easily accessible to actors in the building industry; and they can be used for educational purposes to facilitate dissemination of knowledge of cultural heritage, particularly in museological applications.



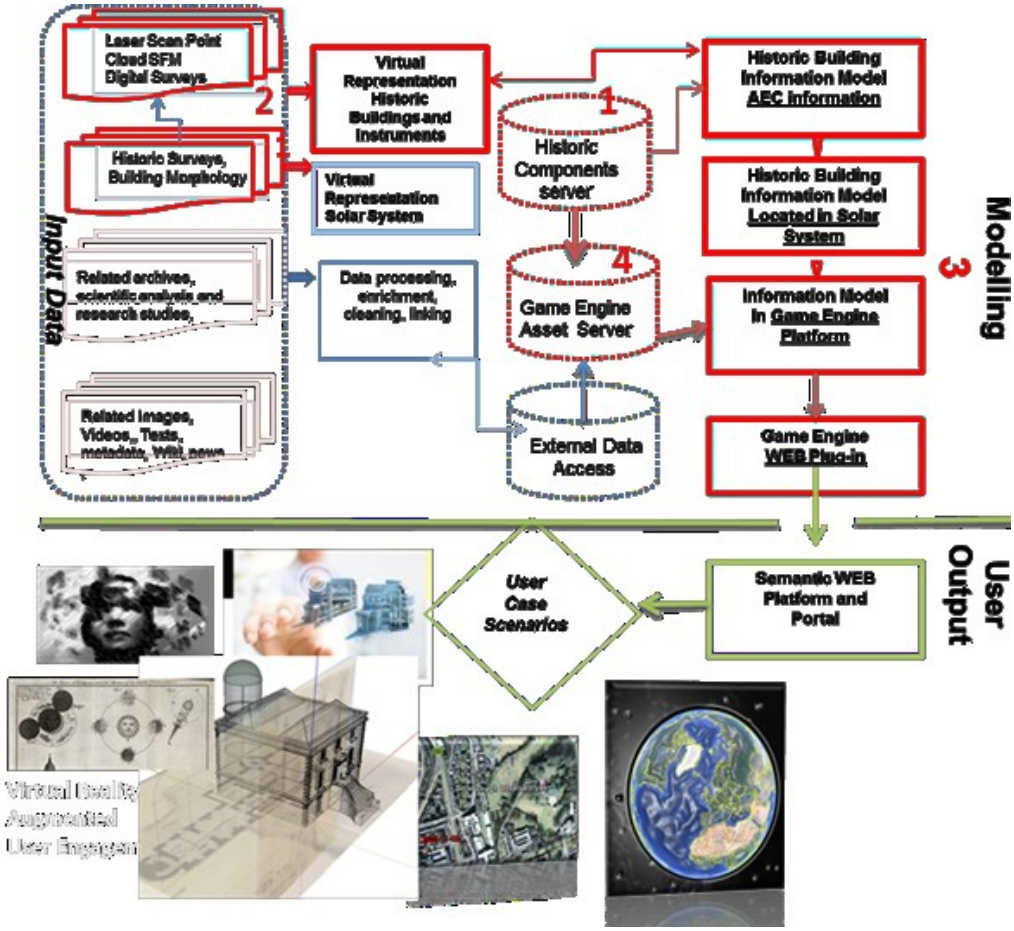
Game engine object design for Armagh Observatory

Building Information Modelling (BIM) is a virtual representation of a building, its structure, materials, and environment, providing the associated information related to its design, construction and future life cycle.

The intelligent data or information contained in the model can range from geometric and spatial to material, structural, environmental, cultural and economic. The model is comprised of intelligent objects which represent the elements of a building structure and are organised within a 3D virtual environment.

Historic Building Information Modelling (HBIM) is an extension of BIM for the physical and knowledge management and conservation of architectural heritage. HBIM involves the digital recording of historical buildings using remote sensing (laser scanning, digital photogrammetry) or combinations of digital surveying and manual techniques.

BIM software while being incredibly useful as a database of all information pertinent to a building, requires highly trained technicians in order to manage the information in a practical way. This becomes a detriment when considering that insights produced from analysis of a sophisticated BIM model are not easily accessible to all actors in the building industry. Exporting a BIM model into a game engine allows for a packaging of BIM data that can be used in a simplified and more intuitive manner.



System architecture for virtual Armagh Observatory