

7. Application of CIM Systems for Construction Sites

- Improving Productivity in Mountain Tunneling, Construction near In-Service Railway Facilities and Land reclamation -

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In preparation for the ongoing national policy such as Construction Information Modeling (CIM) and i-Construction (utilization of information and communication technology), the CIM approach was applied at sites of mountain tunneling work, construction work in close proximity to in-service railway facilities and land reclamation work to identify how CIM can be utilized and evaluate its effectiveness. In the mountain tunneling work, data used by surveying and construction management systems were linked with a three-dimensional tunnel model so that a construction information model including construction management data such as working cutting face observation records, ground evaluation points and cutting face photographs can be generated. This made it possible to create a database of construction and maintenance information without placing a burden on jobsite personnel. In the near-railway construction work, the construction steps in the construction of a railway viaduct including the station and the excavation work for underground station construction were visualized through 3D modeling so that the visualized data can be used for detailed construction planning and discussions with the contractee. For the site reclamation work, a 3D model was created from aerial photograph data acquired by using an unmanned aerial vehicle (UAV). By using the 3D model thus created, it was verified that the present condition of an extensive site being prepared, including the volume of backfill material around structures, can be identified quickly.

Key words: CIM, i-Construction, construction step, visualization, UAV