

## Use Case 11: Construction Sequence Modeling (4D model exchange)

### Purpose

In this use case, individual tunnel components, excavation volumes and functional systems parts are associated with the corresponding processes of the construction schedule being represented in the form of Gantt charts' tasks or of linear plannings' tasks.

This results in a 4D model that is typically used for visualizing and evaluating the construction sequences. The granularity of the 4D model is depending of the needs of the individual projects.

The underlying exchange scenario that IFC-Tunnel is to support the exchange of models from scheduling applications into other applications, such as visualization or analysing software.

Linear planning plays a very significant role in the planning of tunnel construction processes. The corresponding software applications must support this exchange scenario. The goal is to avoid conflicting activities concurrently taking place at the same location.

### Requirements for IFC-Tunnel:

**Geometry:** For this scenario, explicit geometry representations are sufficient. Stationing along the axis must be preserved and related to tasks.

**Semantics (schedule information):** IFC already provides entities to represent schedules (such as IfcTask) and allows to combine it with semantic elements (instances of subclasses of IfcElement).